# YACHTING

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FLATTENING THE HEAD SHEETS. IS IT ANY WONDER THAT YACHTING MAKES ITS OWN DISTINCT CALL?

## Finding the Distance Sailed in Beating to Windward

WITHOUT the use of Bowditch's Tables, or elaborate figuring, the average sailing man has no way of knowing the exact distance he "makes good" on his course when sailing to windward at various angles to his true course. The use of the following table will enable him to find this distance quickly and accurately. All you need to know is the difference (in points of the compass) between your true course and the course actually sailed by your boat, and the speed. This angle between the two we will call the angle of divergence. With the wind dead ahead this angle of divergence (which must include allowance for leeway) will be the same on each tack. With the wind not directly ahead it will be more on one tack than on the other. Knowing the angle of divergence and your speed through the water, then your distance made good toward your destination on a given tack will equal the distance sailed on that tack multiplied by the decimal shown in the following table:

| Angle of divergence. | Multiply distance sailed by decimal. |
|---|---|
| 1 point | .98 |
| 2 points | .92 |
| 3 points | .83 |
| 4 points | .71 |
| 5 points | .56 |
| 6 points | .38 |
| 7 points | .20 |

## The Care of Rope Running Rigging

WITHOUT proper care all rope will deteriorate, and to give it the length of life it should have intelligence must be used in handling it.

All rope swells somewhat after being wet. Bear this in mind and use blocks for your running rigging with large enough sheaves to take care of the swelling. The same applies to fair-leaders of all kinds.

Needless surface wear on running rigging or on any other ropes which work through blocks can easily occur if the sheave-holes are too small to permit easy clearance or if the blocks become fouled in such a way as to bring the ropes out of proper alignment. Either of these conditions will cause the rope to chafe against the sheave and the block. The second may also cause a rope to chafe against other ropes or against something quite apart from the rigging.

Internal friction between the fibers is always present to some extent in a rope working through a sheave. Eventually this results in a breaking up of the fibers—sometimes in a loss of vitality through heat caused by the friction. The smaller the diameter of the sheave in relation to that of the rope, the greater the friction. In few places is a rope subjected to such severe wear from this source as on running rigging. Take care, therefore, not only to use large enough rope to start with but also to use sheaves of the largest diameter permissible.

## Chemical Deterioration of Rope

Besides this surface wear and internal friction there is chemical deterioration from rotting, or what is usually called dry rot. This may occur through a rope that is saturated with water not being given a chance to dry out in the open air. Nothing will injure a rope more rapidly than to put it while wet into a stuffy locker. Anchor cables and other ropes which have become thoroughly wet should always be coiled down or spread out on deck and allowed to dry naturally. The lockers for your anchor rodes, if you use lockers, should be so made as to afford ample opportunity for drainage and for ventilation.

Loss of strength from heat or from rotting is difficult to note except through an actual test of the fiber. That from surface or internal wear can be judged by careful inspection. Open up your rope and see if it looks bright and firm between the strands. In general, a rope which has become "punky" or which has lost its stretch should be viewed with suspicion.

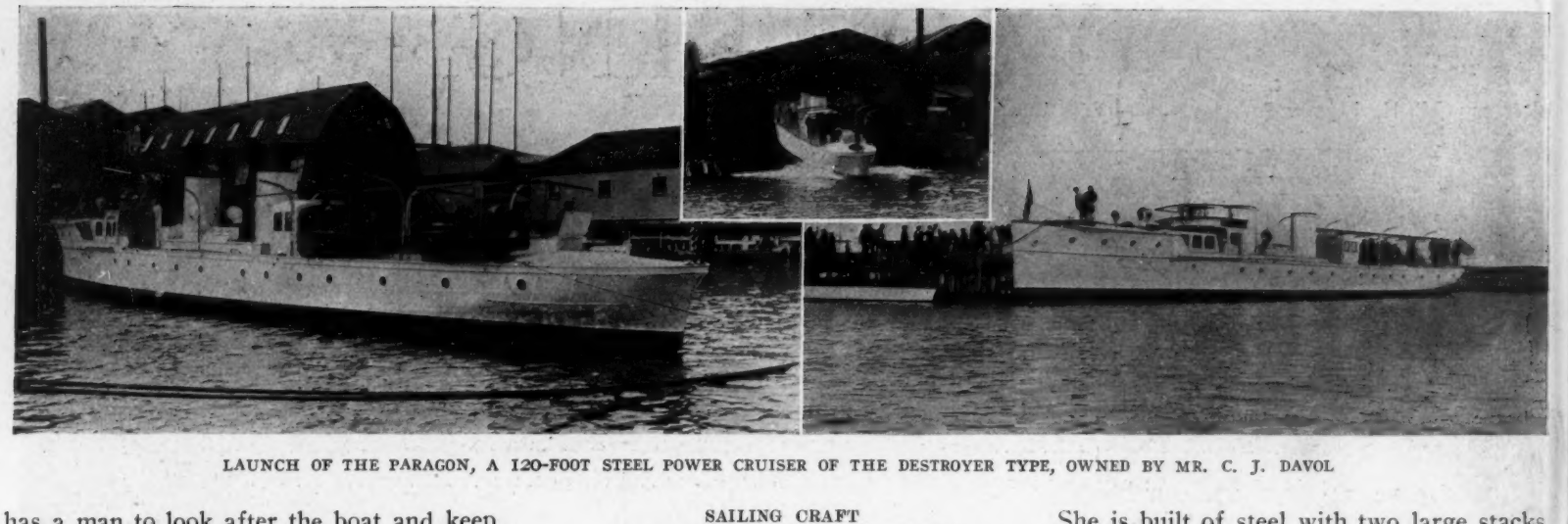
It pays in the end to use the largest ropes permissible and convenient, to get the best ones obtainable and to take good care of them. The limit of safety on an undersized rope or on one made from poor material is reached so quickly as to more than offset any difference in first cost. Inspect all ropes frequently and replace them before the limit of safety is reached.

## Value of Method in Operating an Engine

In operating an internal combustion engine great emphasis should be laid on going about the work methodically, rather than in the haphazard way of most beginners. Good results can only be obtained in this way. One should understand his engine so well and be so accustomed to the methodical performance of any duties connected with it that their performance becomes more than even an acquired habit—something instinctive, almost automatic. No engine will work until it has been started up; every engine requires a certain amount of adjustment to secure its best output; the oil must be fed regularly; at the end of a run the engines have to be "shut down." Each of these entails certain operations and every owner will find it greatly to his advantage to accustom himself to perform each series of these in a regular, unvarying and methodical order. In a very little time they will develop into a habit and in a little while longer will be performed almost unconsciously and automatically. The acquisition of such a habit will be found to result in a great saving of time, and particularly so in getting under way. Unless the owner



SMASHING INTO IT. ORIANA IN A HEAD SEA ON THE SOUND



LAUNCH OF THE PARAGON, A 120-FOOT STEEL POWER CRUISER OF THE DESTROYER TYPE, OWNED BY MR. C. J. DAVOL

has a man to look after the boat and keep her more or less in readiness for getting under way, there will be covers to stow, small jobs of clearing up, a little lubricating round the engine, and sundry small jobs that have to be done before the flywheel is turned over. Unless method is used in these jobs much valuable time will be lost in getting under way.

## Proper-Sized Anchors and Cables for Your Boats

No real sailor neglects his ground tackle, but many amateurs do not get the proper equipment, chiefly through not knowing just the right size or kind of anchor, cable or mooring to get. There is nothing as important to the safety to your boat as adequate ground tackle that will hold under the most adverse conditions. A lee shore is a bad place in a gale of wind, and necessity frequently forces you to anchor in exposed places where to drag spells destruction. The tables below show the suitable ground tackle for small boats of from 20 to 65 feet in length.

This includes a light anchor for ordinary use and a heavy one for emergency use, or when anchoring in exposed places, and length and diameter of cables, both manila and chain. In the smaller-sized boats rope cable can be used more advantageously than chain. In the large sizes chain is generally preferred, as it stows more compactly.

The sizes here given represent the average practice on the Atlantic Coast and Great Lakes. On very exposed coasts a somewhat heavier equipment is necessary.

Wide, flat boats, racing craft with long overhangs and boats with high freeboard, high cabin house or much top hamper, offer more resistance and require heavier gear

POWER CRAFT

| Over All Length of Boat | Anchors | | For Light Anchors | | For Heavy Anchors | | |
|---|---|---|---|---|---|---|---|
| | Light Anchor | Heavy Anchor | Length of Cable | Diam. if 1st Class Manila | Length of Cable | Diam. if 1st Class Manila | Chain Cable, |
| Feet | Pounds | | Feet | Inches | Feet | Inches | |
| Under 20 | 20 | | 100 | | | | |
| 20—25 | 20 | 35 | 100 | | 150 | | |
| 25—30 | 30 | 50 | 100 | | 150 | | |
| 30—40 | 40 | 70 | 125 | | 200 | 1 | |
| 40—50 | 50 | 100 | 150 | 1 | 250 | 1⅛ | 5/16 |
| 50—65 | 65 | 120 | 180 | 1¼ | 300 | 1½ | ⅜ |

SAILING CRAFT

| Over All Length of Boat | Anchors | | For Light Anchors | | For Heavy Anchors | | |
|---|---|---|---|---|---|---|---|
| | Light Anchor | Heavy Anchor | Length of Cable | Diam. if 1st Class Manila | Length of Cable | Diam. if 1st Class Manila | Chain Cable, |
| Feet | Pounds | | Feet | Inches | Feet | Inches | |
| Under 20 | 30 | | 100 | | | | |
| 20—25 | 30 | 40 | 125 | | 200 | | |
| 25—30 | 40 | 60 | 150 | | 200 | | |
| 30—40 | 50 | 80 | 150 | 1 | 250 | 1⅛ | ¼ |
| 40—50 | 60 | 100 | 200 | 1¼ | 300 | 1⅜ | 5/16 |
| 50—65 | 70 | 140 | 200 | 1⅜ | 300 | 1⅝ | ⅜ |

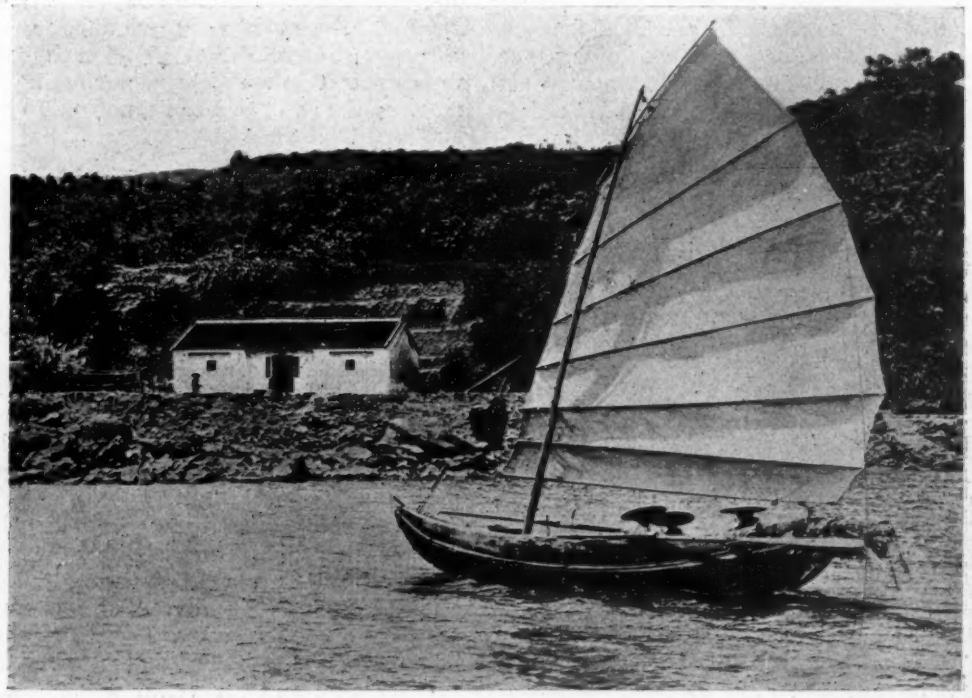
than boats of same size having less surface exposure. Displacement alone cannot be taken as a guide.

## The Launch of the Paragon

A FINE example of the modern, high-speed power cruiser, showing the trend towards the Navy Destroyer type, is the Paragon, recently launched from Jacob's Yard, City Island, for Mr. C. J. Davol, of Providence, R. I., from designs by Swasey, Raymond & Page. She is 120 feet long overall, 14 feet 4 inches beam and draws 4 feet 9 inches of water. She is built of steel with two large stacks, and she will carry a skeleton navy-type military mast. There is a navigating bridge over the deck saloon, which is in an extension of the forecastle head, while there is a shelter seat aft facing the after deck. She is driven by two Winton engines, which are expected to give her a speed of twenty miles. She will be used principally along the Atlantic Coast and her home waters will be in Narragansett Bay.

## Handling a Rope Hawser

The breaking of the fibers which a rope suffers on both sides, when bent around a sharp corner and then subjected to a heavy strain, is considerable. Whenever possible, care should be taken, in making fast to anything, to select an object which presents a round and smooth surface. Deck cleats, whether of metal or wood, should always have smooth surfaces. For hawse-pipes, or any other metal fittings which are to receive rope, use composition, not iron.



A SMALL CHINESE SAILBOAT TYPICAL OF THOSE ON THE RIVERS AND INLAND WATERS OF CHINA. HER PRONOUNCED SHEER AND THE HEAVILY BATTENED SAIL, WITH EXCESSIVE ROACH IN THE LEACH, ARE INTERESTING

Copyright
ONE OF THE FIRST OUTBOARD MOTORS, USED IN FRANCE IN 1909, WHEN THE OUTFIT WAS SPOKEN OF AS A "FREAK MOTOR BOAT"

WHERE THE OUTBOARD MOTOR HAS THE ADVANTAGE ON A PERMANENT INSTALLATION

# The Useful Portable Motor

*The Development of This Handy Little Power Plant and the Many Uses to Which It May Be Put*

Photographs by Courtesy of Evinrude Motor Company, Federal Motor Company, Gray Motor Company, Joy Motor Company, Ferro and Others

PROBABLY no type of marine engine that has ever come into use has filled so many and varying needs as the portable or "outboard" motor. When it was first placed on the market it was generally looked upon as a toy by the man that was used to boats and the water, and was not considered of much practical value. The earlier motors, while not perfect, soon knocked this view on the head; and the rapid development of these little power plants, which culminated in their use by explorers on long expeditions, cut off from all means of repairs and where reliability had to be the keynote, has convinced the most skeptical.

The idea of a motor attached to the outside of a boat instead of inside is not a new one, and in searching the patent records the makers of the present outboard motors have come across a number of devices with this aim in view. In 1864 one of the first patents for this sort of device was issued in this country, to a Frenchman, who used it in a bathing machine, the patent applying more to a self-propelled machine than to the motive power, which consisted of a propeller on the outside of a floating apparatus which would keep a bather immersed, that was worked by the feet by means of treadles. The patent office drawing of this unique model is shown here.

A 40-FOOT NATIVE DUGOUT IN COLOMBIA, SOUTH AMERICA, POWERED WITH THREE OUTBOARD MOTORS, WHICH DRIVE HER FROM 13 TO 14 MILES PER HOUR

Steam engines were, later, built into propulsion units to be fitted to the outside of a boat and were followed by electric motors, none of which were successful. With the development of the internal combustion engine the first real satisfactory outboard motors were possible. Since then the development and perfection has been extremely fast.

The advantages of this type of engine where only small power is necessary are obvious. Primarily intended for small boats, it does not take up room inside the hull, where every inch of space is valuable, and, at the same time, it saves installation expense, the permanent installation of an engine of equal horsepower with tanks, piping, water connections, etc., often equalling the entire cost of an outboard motor. For small work and fishing boats the saving of space is of even more importance than in pleasure boats and frequently two, or even three, motors are attached to one boat in order to get the requisite power without sacrificing space inside the hull.

The most common uses of these motors are too well known to need repeating. Many a back-breaking row that has nearly spoiled

TWO-HORSEPOWER VERSUS ONE-MAN POWER

AT ALPENA, MICH., THE OUTBOARD MOTOR DOES DUTY WINTER AND SUMMER. NOTE RUNNERS ON BOAT FOR DRAWING OVER SNOW OR ICE

a fishing expedition in the past, or the long fight up-stream in a canoe, have been eliminated; so that now the many fine fishing and canoeing streams that this country affords do not always have to be taken "down stream," but the head current can be negotiated with impunity. Even the northern guides and woodsmen, who cling strongly to tradition and to the old order of things, count an outboard motor a necessary part of their equipment to-day.

From the yachtsman's viewpoint, it offers the very best type of power for a power tender or "dink" for the small yacht—or one even for the large. A regular power tender is a very troublesome proposition if it has to be towed, and is usually so heavy that it is a nuisance to have her filled in a rough sea and, if this happens with a permanent installation, there is not enough buoyancy in the boat to float her. Even a canvas cover over a boat is not much protection in a bad sea, as water works in under the edges. The portable motor is the solution of the power tender problem for small boats. No dinghy is too small to be fitted with an engine of this type (they are frequently put in ten-footers), while they are suitable for boats up to 16 feet or over in length, especially as the tendency has been to increase the power of the motors. If the "dink" has to be towed the engine can be unclamped quickly and stowed aboard the yacht and the towing qualities of the tender will remain unimpaired. If the boat is carried on davits, instead of using a power tender weighing from 400 to 600 pounds, one is only carrying a light boat weighing from 90 to 150 pounds, which will not affect the trim or stability of the yacht or affect her sailing qualities, if she is a sailing yacht. Where no davits are carried the "dink" is often hauled up on deck by hand, and this is impossible with a regular power tender. The usefulness of the power tender over the hand-rowed tender is obvious.

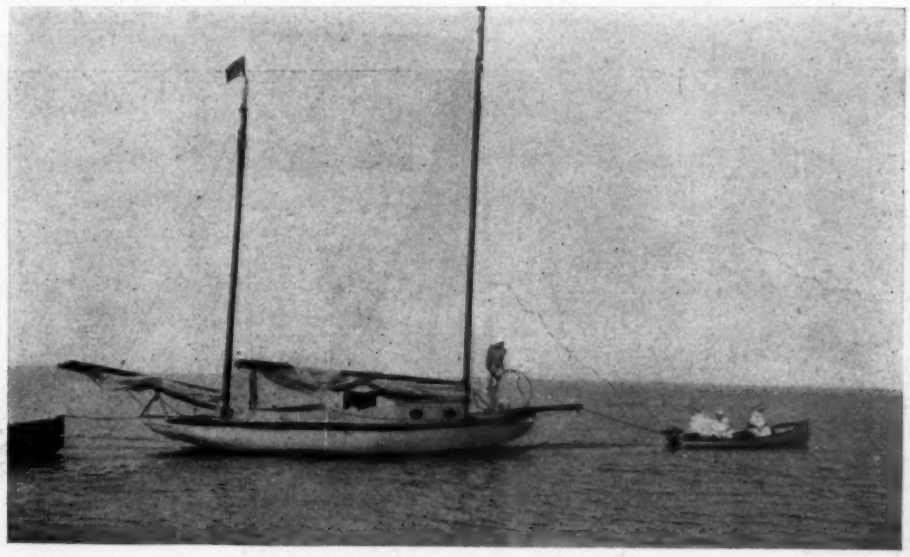
Though principally used thus far for pleasure purposes, the widely varying service to which these motors are being put is evidence of their value in the commercial field. They are in use in all parts of the world, for many kinds of service in small boats, while all kinds of devices are resorted to for attaching them to the hull. Their simplicity, lightness, and the fact that they can be quickly detached in shallow water where an ordinary power boat cannot go, has made them particularly popular in South American and Central American countries, where most of the traffic is by the swift, shallow rivers.

The development of the engine has

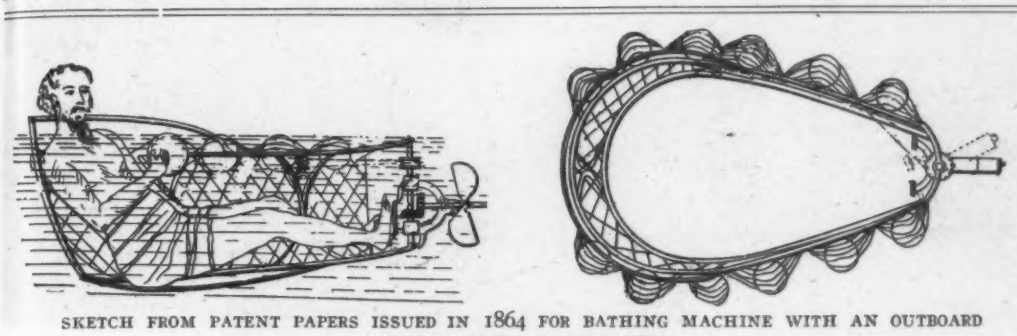
MOVING THE PROSAIC HOUSEBOAT WITH AN OUTBOARD MOTOR

brought many improvements in the last few years. Probably the two most important are the change from one cylinder to two cylinders, thus getting increased power and less vibration at very little, if any, increase in weight, and the use of the magneto for ignition purposes in place of the dry battery current. Also other improvements, such as various methods of reversing, of swinging the propeller up clear of the water when beaching the boat, and of silencing the exhaust are found, while many of the engines have special devices for attaching to the hull. These latter have enabled the engines to be used as auxiliary power in sail boats, and many boats up to approximately 30 feet in overall length use an outboard motor for auxiliary power instead of giving up valuable space in a small cabin to a permanent installation. Another advantage they offer for auxiliary power is that in a permanent installation the drag of the screw is always apparent to some extent; with an outboard motor this is eliminated when the motor is taken on board. Many of the smaller racing boats find this type of power of great advantage in enabling them to get to the starting line on time. With the fickle summer breezes many an entry has failed to start merely because he couldn't get to the line before the starting gun was fired.

As a mark of the popularity and the size of the field for this type of power it may be said that a recently compiled list of the manufacturers of engines of this type in this country showed that some forty-five different makes of motors are now offered



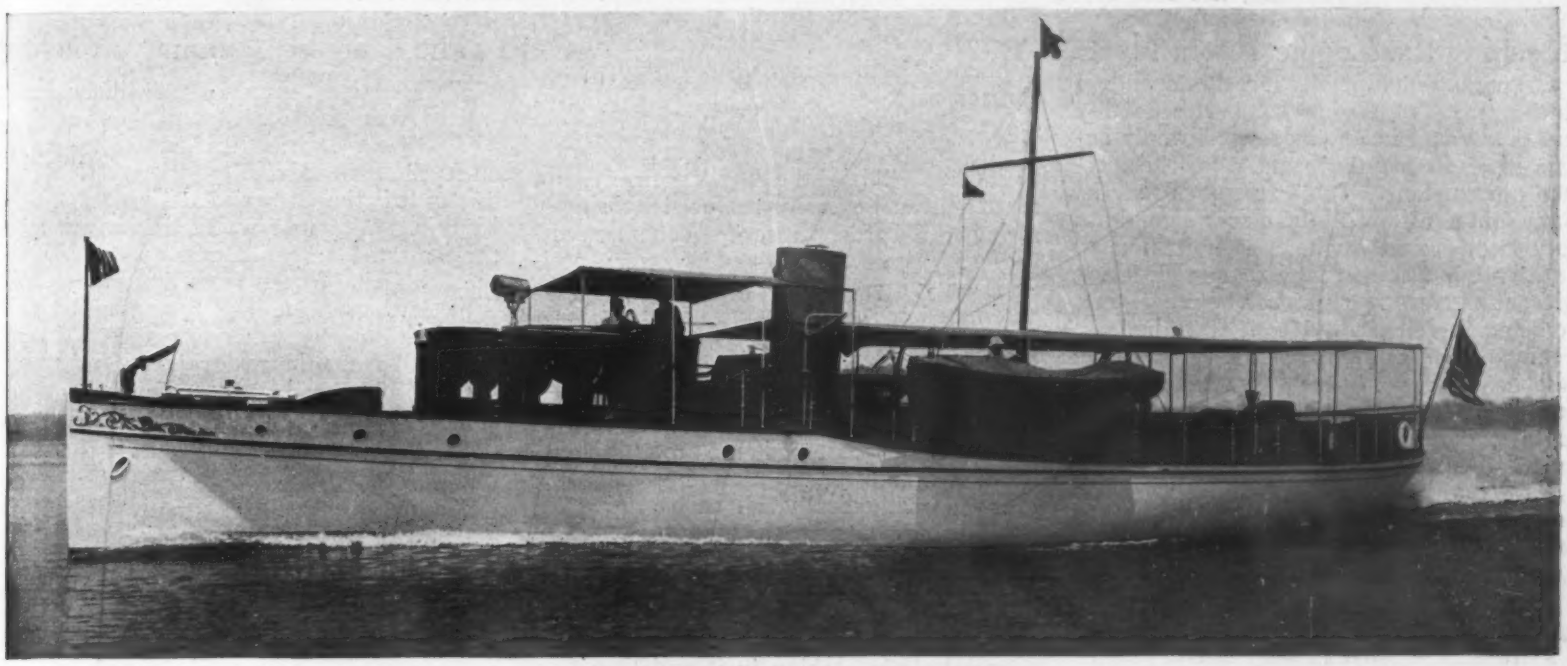
THE PORTABLE MOTOR ON THE JOB IN A CALM



SKETCH FROM PATENT PAPERS ISSUED IN 1864 FOR BATHING MACHINE WITH AN OUTBOARD MOTOR WORKED BY THE FEET

for sale, a great many of them being sold for export trade. This looks as as if the outboard motor was here to stay and that the next few years will see a still further development of it, both in power delivered and a broadening of its field of use.

Though small and light in weight they have the necessary requisites of a power plant for this kind of use in that they can be relied upon and can be run with the minimum of attention.



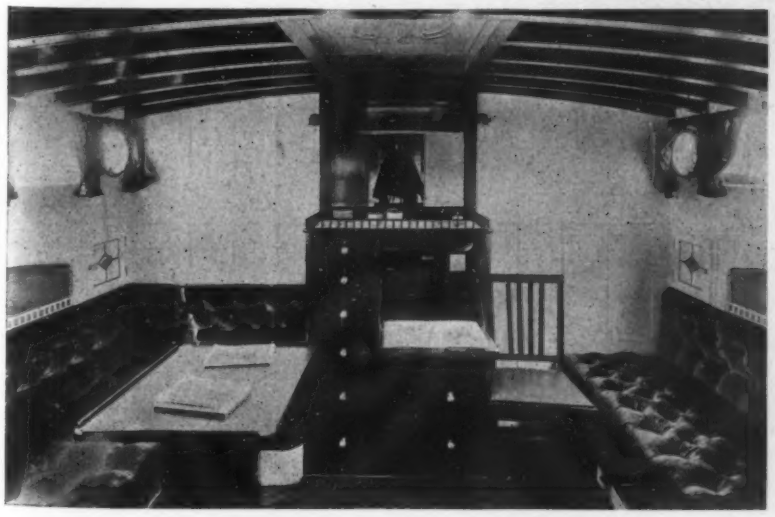
## The 80-Foot Cruiser Minerva

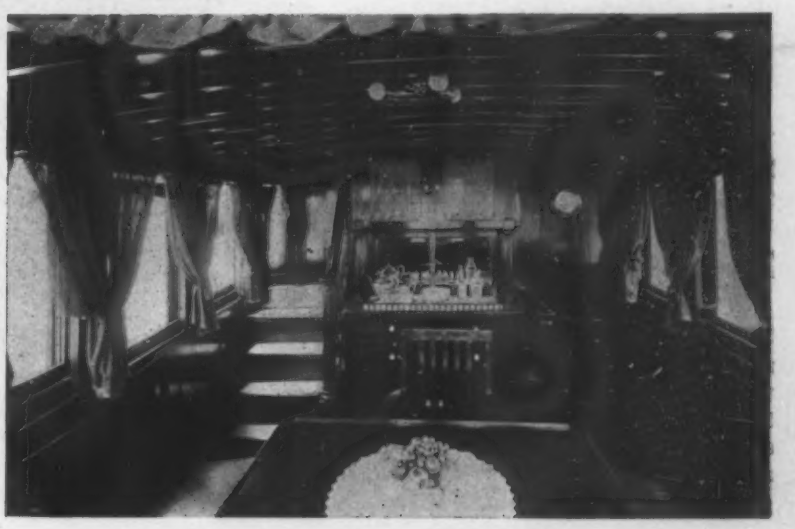
THE handsome 80-foot power cruiser Minerva, built last year by the Luders Marine Construction Company, has just been purchased by Mr. A. S. Cochran, owner of the Vanitie and the new schooner Sea Call. She is one of the finest and best appointed power cruisers of her size on the coast and photographs of her interior are shown here for the first time.

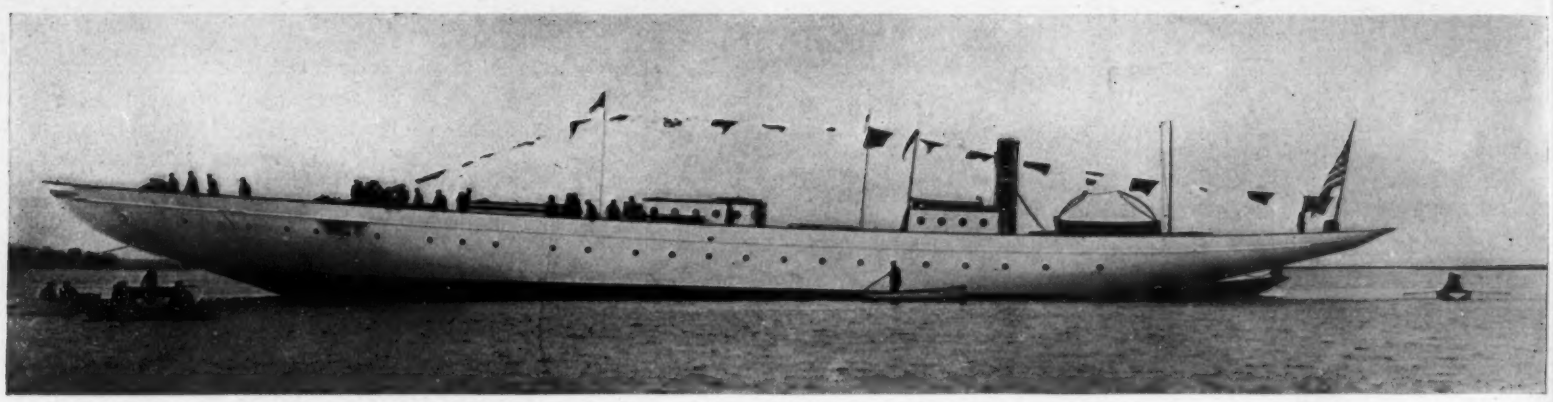
She is 80 feet long overall, 14 feet beam, 4 feet 6 inches draft and is powered with two 4-cylinder, 6½" x 9" bore and stroke Sterling engines.

She is finished below in paneled mahogany, with the exception of the stateroom, which is in white enamel with mahogany trim. The dining saloon is in the forward deckhouse, abaft which is a steering bridge. The pictures show the deck dining saloon, companionway and vestibule with a transom seat, and the after stateroom, which is unusually commodious.

The Minerva will be used by Mr. Cochran along the Sound and New England coast this summer for running around in connection with the racing of the Cup defenders Resolute and Vanitie.







SEA CALL, THE NEW 215-FOOT AUXILIARY SCHOONER DESIGNED BY WILLIAM GARDNER FOR A. S. COCHRAN

## Keeping the Engine Room Neat

Engine efficiency is frequently dependent on keeping the engine compartment tidy and everything in its place. A slovenly engine room frequently means a poorly operated power plant. Tools or spares may be wanted in a hurry and the owner should not only know exactly where each item is to be found, but should be able to pick it out without disturbing a number of other parts or being forced to disinter it from beneath a mixed-up mass of oddments. Every man who has charge of machinery has his own pet methods of keeping tools and spare parts, and the inexperienced engineer will quickly develop habits of his own.

One thing which is required more frequently than another in an engine room is a bunch of cotton waste. It looks bad to keep it on the floor or thrown down anywhere, and the owner-engineer may not care to stuff it into the hip pocket of his trousers or overalls. A useful "tidy," not unlike a sponge-holder in shape, can be easily made from a piece of tin. This can be fixed to a bulkhead in the most convenient position for immediate accessibility and will be found one of the most useful items of the equipment of the engine room. This waste-holder can be made to accommodate the oil can, or a separate oil can holder can be fitted in convenient place. The ordinary engineer's oil can, of solid, seamless material, with a strong spout of sufficient length and a push button to eject the oil, is a much more workmanlike and satisfactory instrument than those of the "squeezer" type, which are so often seen in launches. A grease gun is a thing not often required on a launch; the best way of filling the screw-down tops of grease cups is to dig the grease out of its native tin with a spatula—a paper knife or an old dinner knife will do excellently—and press it into the top with it. As grease is not likely to be required very often during a run the tin may be put away out of sight after the cups have been filled.

## For Keeping Spanners, Tools and Spare Parts

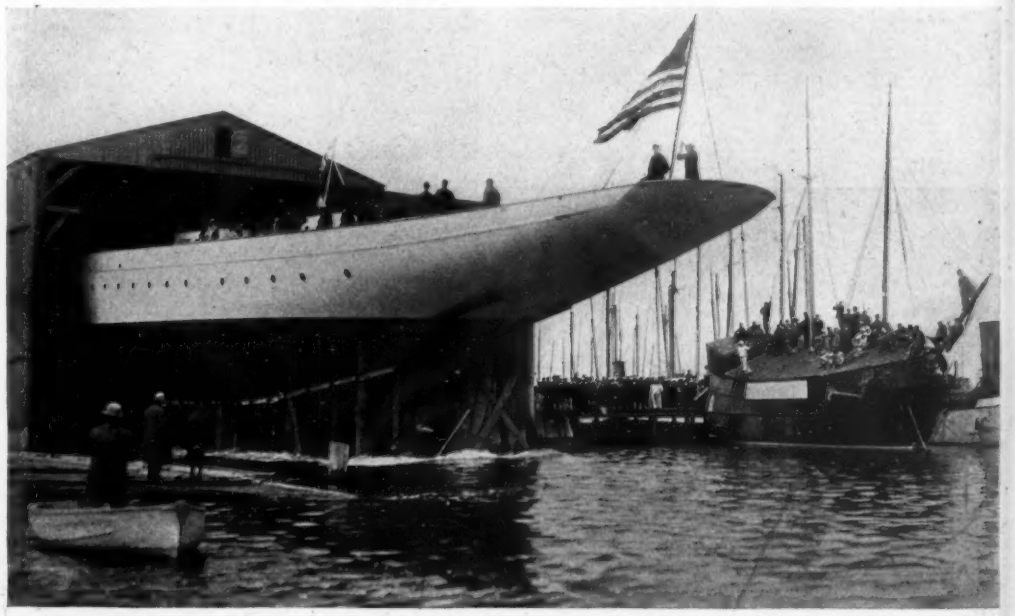
Spanners are things that may be required at any moment and should be kept in an accessible place, ready to hand. They need to be held firmly, so that they will not come adrift of their own accord with the rolling or pitching of a small vessel, but not so firmly as to cause trouble in detaching. The best and neatest way of all, perhaps, is to screw small brass clips, two to each spanner, on a bulkhead or varnished board. If made of spring brass these clips will hold the spanners firmly, and any one can be easily removed by simply lifting it upwards. Special spanners, necessary sometimes for nuts in awkward positions or for valve caps and so on, can be accommodated on the same board.

The storage of spare parts will be regulated to some extent by their number and size. Large items, such as spare connecting rod or propeller, can be held in special supports fastened to roof or bulkhead. Small parts should always be grouped methodically, all carburetor parts together, fitments for the magneto together, and so on. Perhaps the neatest way to accommodate such small items is in shallow drawers, one above the other. Starting with an empty drawer, the spares can be laid out in orderly fashion in it and then narrow strips of wood, equal in height to the depth of the drawer, fixed down with thin nails to keep them in place. When the drawer is closed these separations prevent the parts jumping about and getting mixed. It is attention to such details that tends toward increased efficiency of the vessel.—JOHN M. WARD, in *The Yachtsman.*

## The Largest Auxiliary Yacht

THE largest American auxiliary yacht was launched from the yard by Geo. Lawley & Sons Corporation on April 29 for Mr. Alexander S. Cochran, owner of the America's Cup candidate Vanitie. The new yacht is rigged as a three-masted schooner and will be named the Sea Call. She is from designs by William Gardner. She is 215 feet long overall, 150 feet on the water, 33 feet 6 inches beam, 18 feet 6 inches draft, while her sail spread will be in the neighborhood of 18,000 square feet. Everything about the boat is of special material and construction, and she is plated with chrome vanadium steel. She has two steel deck houses, which make comfortable lounging rooms, and from which companionways lead below. The power will consist of a 500 horsepower especially built gasolene motor, while the fuel tanks will have a capacity of from eight to ten thousand gallons.

Below decks the owner's and guests' quarters are finished in white, while the crew's and officers' quarters are in butternut. The owner's stateroom, bathroom, store room, lounging room and chart room are in the stern, abaft the mizzen mast. Forward of these quarters are the saloon and dining-room.



LAUNCH OF THE SEA CALL. THE CARAVEL HOUSEBOAT HALCYON IS SEEN IN THE BACKGROUND

# Long Voyages In Small Boats

*An Account of the Many Attempts, Successful and Unsuccessful, to Cross the Atlantic Ocean in Small Boats. Many Forgotten and Almost Unrecorded Voyages Recalled. The Little Vessels and Their Daring Navigators.*

BY C. G. DAVIS

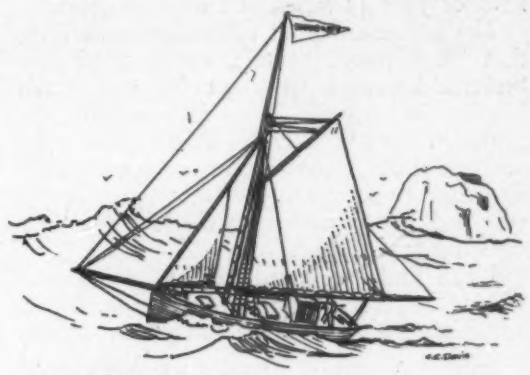
IN looking over some old papers recently I came across a woodcut of a little boat that had crossed the ocean in 1863, yet whose memorable voyage has been completely forgotten in the lapse of time. That started me wondering how many men had succeeded in those oft-tried attempts to cross the great oceans of the earth in small boats, and how many had tried and failed. The names of Captains Andrews, Lawlor, Slocum, Voss and Day, being the most recent, are still fresh in the memories of most of us; but of those who went before and left no lasting record in book form, almost nothing is known—in fact, the records themselves are almost obliterated by time—and the hardships and suffering that the fearless skippers underwent have been in vain, as far as lasting fame or notoriety go. So I began collecting data on all the voyages that have been recorded in any way, and, strange to say, have found that some fifty attempts have been made to cross

VIKING ship which crossed the Atlantic in 1893. Norway to N.Y.

the ocean, most of which have succeeded. The following pages contain brief accounts of those that I could get any data on.

Historically, the most interesting of all these trans-Atlantic voyages are those of the three caravals—Santa Maria, Nina and Pinta — replicas of the originals — that crossed the Atlantic in 1891, and of the small Norwegian craft, a reproduction of an ancient Viking ship unearthed in 1879 at Christiana, that was manned by Norwegians who sailed and rowed this beautifully modeled double-ender across in 1893, just as their forefathers had done centuries ago.

It was in 985 that the intrepid Viking, Erik, surnamed the Red, discovered Greenland. In 986 young Bjorni, son of one of Erik's comrades, sailed from Iceland to join his father in far-off Greenland, where he had settled, but shaped his course too far south and came upon America. He then sailed northward along the coast of America, past Nova Scotia, before he

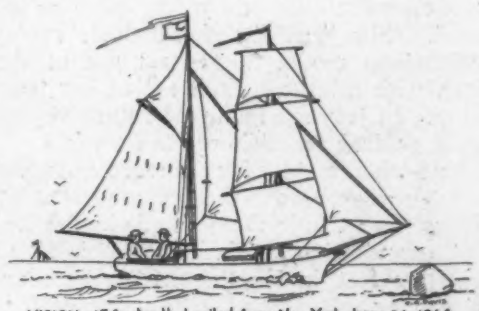


BIJOLDMOEN crossed from Norway to Chicago Ill. in 1863

eventually found the fjord on the Greenland coast where his father dwelt. Then Lief, the son of Erik, bought the ship from Bjorni, made another voyage of discovery and once more visited the shores of America.

An account of the earliest trans-Atlantic voyage of a small boat, barring such voyages as these early Vikings may have made, is described in an old volume of the Rudder. This tells how the discouraged settlers from Great Britain, who landed at the mouth of the Kennebec River in Maine, built a small vessel named Virginia, and when the ship Mary and John, in which they originally came over, returned again to England on her second trip in 1608, some of the colonists sailed this boat, Virginia, across to England in company with her. Her size is not mentioned, but size did not seem to matter much to the hardy mariners of those days.

In his interesting book, "The Story of the New England Whalers," John R. Spears says: "The first vessel larger than a rowboat owned on the island of Nantucket was the sloop Mary, of twenty-five tons, built in Boston in 1694 and sold to Richard Gardner and his partners of Nantucket four years later." A subsequent passage in the book that says, "The people of the island began to fit out their sloops for whaling cruises of from five to seven weeks' duration; for the sperm whale was to be found only in deep water"—which shows that the



VISION - 15 footer that sailed from New York June 26-1864.

men in those days were not afraid to go to sea in small boats.

Some hundred years later, or about the year 1800, a Captain Cleveland, of Salem, made a voyage singlehanded in a fifteen-foot cutter from the Cape of Good Hope to Alaska and the west coast of the United States.

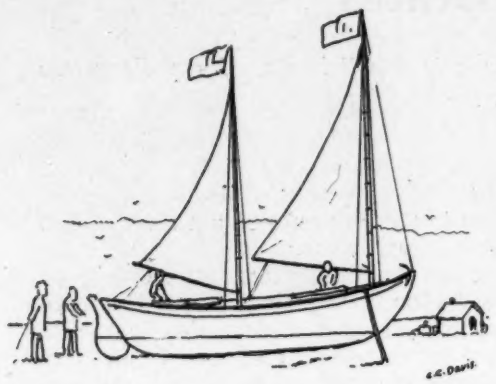
In this same book of Spears' is an account, taken from the North American Review of January, 1834, which shows the adventurous spirit of the American sailors and the seaworthiness of their small sloops. The quotation is as follows: "A few years since two Russian discovery ships came in sight of a group of cold, inhospitable islands in the Antarctic Ocean. The commander imagined himself a discoverer, and doubtless was prepared, with drawn sword and with the flag of his sovereign flying over his head, to take possession in the name of his Czar. At this time he was becalmed in a dense fog. Judge of his surprise, when

CITY OF RAGUSA crossed the Atlantic in 1870 in 98 days.

the fog cleared away, to see the little sloop Hero, of Stonington, Connecticut, Capt. Nathaniel Palmer, as quietly riding between his ships as if lying on the water of Long Island Sound." This was in 1820, when the Hero was off the South Shetland Islands after seals. The little vessel was only of forty odd tons measurement. This is but an illustration of the adventurous spirit of the American whalemen of that day.

In 1849 J. Miller Cranston, of New Bedford, sailed from that port to San Francisco—13,000 miles—in 226 days in a forty-one-foot boat named the Toccao. That was in the days of the gold fever, when hundreds of Argonauts were going to 'Frisco by way of sailing ships around Cape Horn, or by the short cut across the Panama Isthmus, re-embarking on the west coast, or even overland across the Western prairies and mountains in "prairie schooners."

Getting down to more recent successful or attempted voyages in small boats, an engraving showing a small cutter, close-



20 ft NEW BEDFORD - which Thomas Crapo and wife crossed the ocean - 1877.

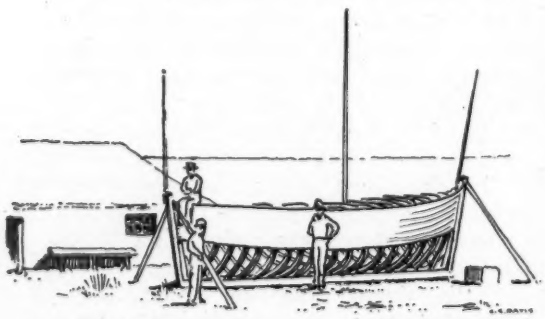
reefed, riding a heavy sea with icebergs to windward, in the August 29, 1863, issue of Frank Leslie's Illustrated Newspaper, shows what kind of a craft the Skjoldmoen was that was sent out from Bergen, Norway, by Torgar and Oscar Svanoe, in command of Rothje Wesenberg and a crew of five men, on the 11th of April, 1863. Loaded with a cargo of herring, codfish and salt, this little 50-ton cutter, 63 feet long, 17 feet beam and 12 feet depth, arrived in Chicago, Ill., in ninety days.

In that same year, 1863, there is a short paragraph in the daily newspapers (as if it were unworthy of more space) announcing that the smallest cutter-sloop, a craft of only 30 tons, had made the passage across the Atlantic from Bordeaux, France, to the West India Islands, sailed by one Joseph Shackford.

On the 17th of June, 1864, there was launched from the foot of Grand street, East River, a little 15-foot boat, of 4 feet 6 inches beam and 2 feet 10 inches depth, rigged as a brigantine, named the Vision, in which, on Sunday afternoon, June 26, of the same year, Capt. J. C. Donovan and Wm. Spencer, of Providence, R. I., and a dog named Toby, started across the ocean.

"Their only provision for cooking," as an article in the July 16, 1864, issue of Frank Leslie's says, "is a lamp, the voyagers trusting to corned meats for their fare and carrying 55 gallons of water to drink, pure and in coffee.

"When all was ready Capt. Donovan set his foresail, foretopsail and mainsail, and, giving her the jib, she was headed for Governor's Island on the wind. Standing close in he then tacked ship, reaching over



The boat that brought three men home from Africa to England in 1888.

to Whitehall, when he again tacked, heading for Bedloe's Island, and, making one more tack, he stood down the bay with a nice breeze, making at least 8 knots. Their destination was Land's End and then London. The pilot boat Wm. Ball gave the next tidings of her, having passed her on the 28th of July 45 miles east of Fire Island."

The article ended by the writer remarking that "it required some nerve for such an undertaking and we hope he will reach London in safety." Then followed a paragraph to the effect that if this voyage were successful our sloops might cross and cause England to tremble lest our small boats troubled her commerce and destroyed her coasting trade.

I can find no record of her having succeeded in reaching the other side, but I sometimes wonder if the subsequent article referring to the loss, in that same year (1864), of a yawl with a Messrs. Wells and Dawson on board might not refer to the Vision. These old accounts get so tangled that in later years it is almost impossible to straighten them out. I have seen so many instances myself where at the last minute one

WILLIAM R. GRACE - that started across the Atlantic in 1881

man has backed out and another gone in his place that I often doubt the names as printed in accounts of events.

In 1866 two boats are credited with having crossed the Atlantic Ocean by J. D. Jerrold Kelley in his book "American Yachts." One was the 27-ton sloop yacht Alice, owned by Thomas G. Appleton, who, with two friends, a crew of four men and a steward, left Boston, Mass., at noon on July 12, 1866, and arrived off the Needles on the evening of July 30, 1866, where she hove-to till daylight, and the next morning sailed into Cowes Harbor. The Alice was 54 feet long, 17 feet 6 inches beam, 6 feet 10 inches draft aft and 2 feet 5 inches forward. She was the full-bodied, roomy, little sloop model in general use at that time, with a large cockpit aft of her trunk cabin. In July she made the return voyage, being 34 days from Cowes to Boston.

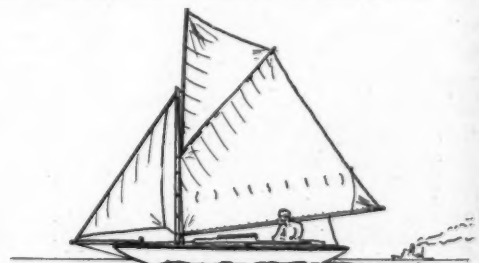
The other, and by far the more extraordinary voyage, was the reputed passage across the Atlantic Ocean made by the Red, White and Blue, a diminutive ship-rigged craft 27 feet in length, 6 feet beam and measuring 2½ tons. She cleared from

NAUTILUS - 19 foot dory, sailed from Boston to Cornwall in 1878

New York on the 12th of July, 1866, with two men, Messrs. Hudson and Finchly, as crew, and on the 5th of August she spoke the bark Princess Royal, of Yarmouth, Nova Scotia. On the 6th and 8th she was nearly lost in a gale by heavy seas, which threw her upon her beam ends; on the 14th of August she made the Bill of Portland, was towed to Margate and finally on to London, the whole voyage occupying 38 days. Besides her crew of two men she carried a dog, the latter dying at the very end of the voyage.

Considerable doubt was entertained at the time as to the truth of the story of her passage as told by her log book, but the question was finally decided in her favor. It was claimed by some that she was carried across on the deck of a merchant ship and put overboard at the mouth of the Channel. She afterwards went to France, was towed up the Seine, and then, by special permission of the Emperor, was exhibited at the Paris Exposition, where J. D. Jerrold Kelley saw her and writes as follows of her voyage: "I had the privilege both of seeing her and of doubting the story, for which last sin I am now doing penance, by declaring that if the most direct evidence is to be believed, she did sail from New York, did cross the ocean, did speak the Blue Nose bark and did arrive in an English port without assistance. The whole thing was foolish in the extreme, for it proved nothing except to what ends men will go for notoriety."

Concerning this disputed voyage, about four years ago I happened to let slip a deep-sea "cuss word" when something provoked me, and an acquaintance, who was talking to me at the time, came back with another. I had never suspected that he had been to sea; but that started us "spinning coppers," and among other things the subject of the



FLYING DUTCHMAN - Capt. Andrea's last venture, 1888.

ea Bird's crossing the ocean came up, and A. Kennedy Childs, my friend, told me he was once mate on the Wm. Tapscott, a Western Ocean packet. On one voyage ey hove-to just out of sight of land and l hands wondered what the old man was p to. But when a toy ship came sailing longside they knew. They hoisted her up n deck, and when within a day's sail of he other side backed their main yards and oisted the ship over again and left her.

Whether this was the Red, White and lue or a subsequent boat, I do not know.

In 1867 there are two voyages recorded; ne the trip of the American, a life-raft omposed of four cylinders lashed together, hat sailed from New York June 4, 1867, navigated by three men, Capt. John Wikes nd Messrs. Miller and Mullane. She arrived at Southampton July 25. The other was the trip of the dory Nonpareil, in which two men, Miller and Lawton, crossed from Gloucester, Mass., to Southampton in 27 days.

The following year, 1868, the attempt was made again, when two men, Messrs. Marshall and French, started across the ocean in the skiff John T. Ford. Marshall and the skiff were lost, but French was rescued by a steamer.

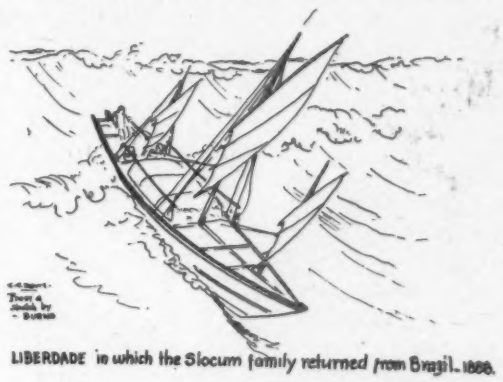
Two years later, in 1870, two men and a dog crossed the Atlantic from Liverpool to Boston in 98 days in a little yawl, called e City of Ragusa. Frank Leslie's Illustated Newspaper of July 16, 1870, again rnishes us data on this event and an enaving of the boat, a yawl, copied from the ndon Graphic, in which it originally ppeared at the time she started from Engnd. Her crew consisted of two men, J. C.

MERMAID - Capt. Andrews - started across 17 June 1891.

uckley, master; a man named Harper for ew, and a Newfoundland dog. It says:

"The City of Ragusa formerly belonged o the ship Breeze, which foundered in a errific storm in the English Channel. ourteen of the crew succeeded in reaching Ramsey, Isle of Man, in the long boat, which as thus shown her seagoing qualities. She as since been decked over, with a small ockpit aft. Her cabin has been made as omfortable as the limited space will permit, and she carries three months' provisions and one hundred gallons of water, which can be pumped out of the tanks should it be desirable to lighten the vessel.

"She has been rigged as a yawl and can also set square sails on both masts, spreading about seventy yards of canvas. In addition to her sailing power she is fitted with a two-bladed screw propeller, which can be raised when not in use, and is worked by hand in the same manner as a ship's pump. The Captain expects to reach New York in fifty days. The City of Ragusa is



LIBERDADE in which the Slocum family returned from Brazil - 1888.

the smallest vessel ever cleared at the Liverpool Custom House, and, curiously enough, the gentleman who performed that duty for her also cleared the Great Eastern, the largest."

The records show that the City of Ragusa landed in Boston in 98 days.

We sometimes run across information in unexpected places, and that is the case with the next entry. On page 102 of Hayden's Dictionary of Dates there is an entry which reads: "Boat Voyage. Alfred Johnson, a young man, started from America (Gloucester, Mass.) in the Centennial, a dory 20 feet long, sloop-rigged, on June 15, 1876, and landed at Abercastle, Pembrokeshire, August 11, 1876."

In 1877 Thomas Crapo and his wife, Joanna, of New Bedford, Mass., sailed in a 20-foot, sharpie-rigged decked whaleboat, named the New Bedford, from New Bedford to Penzance, England, in 49 days.

Capt. Crapo was then thirty-five and his wife twenty-three years of age. The New Bedford was built by Samuel Mitchell on Fish Island, connected with the city at that time by a foot bridge. She was 20 feet long, 6 feet 2 inches beam, 33 inches deep and drew 13 inches of water. She had two small deck hatches each 18 x 24 inches. She carried two leg-o'-mutton sails, the foresail of 15 square yards, the mainsail of 10 square yards.

They left New Bedford May 28, 1877, amid cheers, ran across to Vineyard Haven, where they stayed overnight, then sailed the next day across the bay to Chatham. Here they stayed several days at the home of Capt. Darius Hammond while changes in the deck hatches were made and 200 pounds of weight was added to her keel.

It was 2 P. M. on June 2 when they finally started for Europe. How they cooked coffee on a lamp steadied between their feet, the various vessels they spoke, and the suffering for want of room to exercise are all graphically told in the narrative of this trip published in 1893 under the title of "Strange But True."

Many times they were forced to ride to sea anchors, only once leaving their own craft, and that was to pay a visit aboard the bark Amphitrite and have a hot dinner and a chance to stretch their limbs. Once they were nearly run down when they both fell asleep at the same time, but at 4 P. M. on July 21, the New Bedford safely passed Land's End, being saluted by the light-house keeper and tying up alongside a fishing boat in Penzance Harbor at 11 P. M. Both of the crew were so tired that they fell asleep while waiting for the water to boil to brew a pot of coffee.

Capt. W. A. Andrews and Josiah W. Lawlor were very much in the public eye when I became old enough to take an interest in affairs nautical. Capt. Boynton was also mentioned a great deal in the news of the time. In his rubber suit he was attaching rubber footballs, in lieu of torpedoes, to the cables of men-of-war anchored off Stapleton, Staten Island, to demonstrate the value of the suit, which, when inflated, permitted a man to lie on his back in the water and paddle himself about like a canoe. He demonstrated his suit abroad by paddling down the River Po in Italy and also by crossing the Straits of Messina.

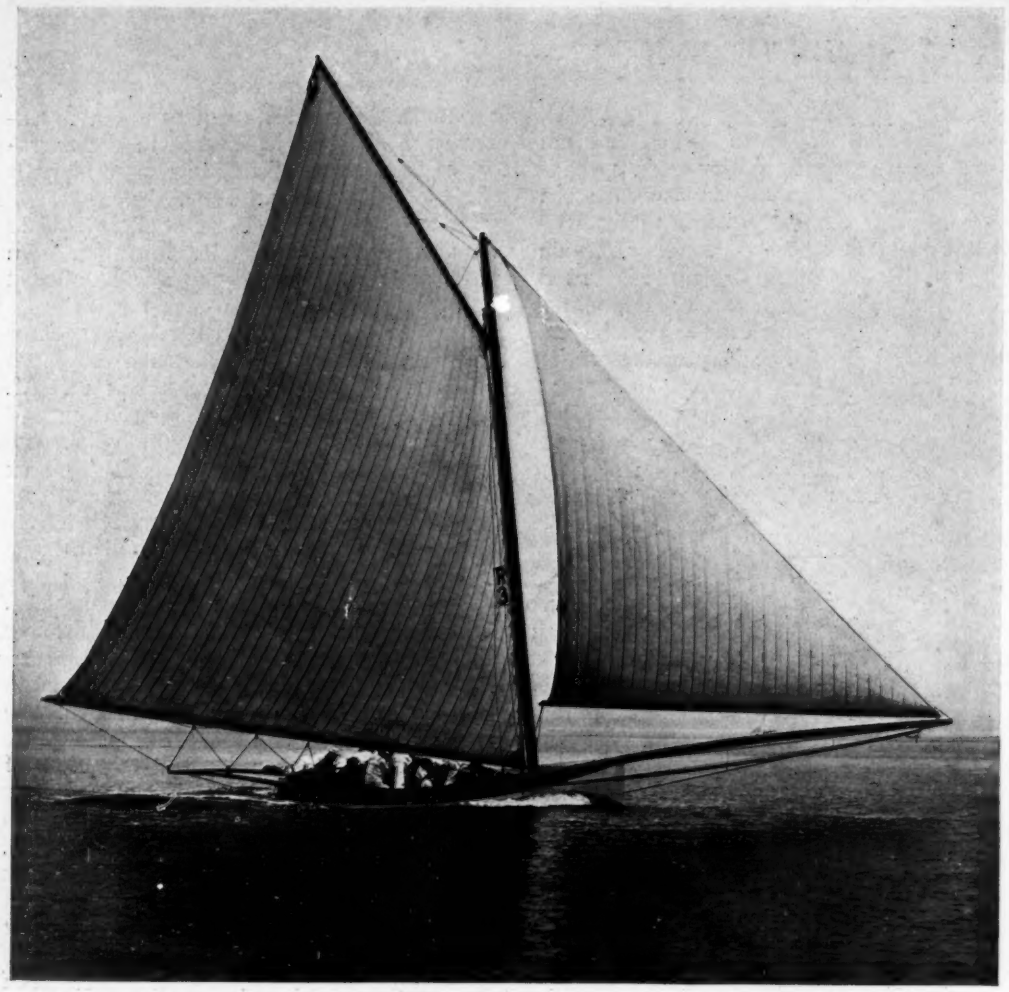
It was this Capt. Andrews and his brother who sailed from City Point, Boston, Mass., on Monday, June 3, 1878, for France in the Nautilus, the smallest boat yet to attempt this venture. Built by Higgins & Gifford, of Gloucester, this dory was 19 feet long overall; 15 feet 6 inches on the bottom and

SEASERPENT - Capt. Lawler - crossed the ocean in 45 days. 1891.

27 inches deep. She had an 8-foot mast, and a yard 23 feet long, spreading a triangular lateen sail of 25 square yards. She had aboard two other sails; a square sail of 5½ yards and a tiny storm trysail of 1½ yards of stouter canvas.

The adventurers had no idea of navigation, but spoke many vessels, and so kept on their right course, arriving in 45 days at Mullion Cove, Cornwall, England. On returning to America Capt. Andrews' brother was taken ill and died.

Three years later, or in 1881, the seaworthiness of a ballenera, or Buenos Ayres



A CLASS "R" BOAT OF THIRTY YEARS AGO. IN SPITE OF ITS BEING A VERY LIGHT BREEZE SHE IS SURELY TRAVELLING

whaleboat, was proved by the safe passage made by two Italians from Buenos Ayres to Caprera on the Mediterranean Sea in one of these small boats.

Benjamin Radford and Charles Moore, in July, 1881, fitted up a ship's lifeboat 19 feet long on the keel, 5 feet beam and with a draft of 13 inches, in which they expected to cross the ocean in 35 days. She was rigged as a brigantine and named the William R. Grace, in honor of New York's mayor. Both men had followed the sea for many years. Besides a swinging rudder for calm weather they had a long steering oar for rough water work; and while the hull was all open, their food was kept dry in lockers built under the seats.

There was a sketch of her in an illustrated magazine of July, 1881, but no record is found of their having made the trip.

Seven years later Capt. W. A. Andrews, of the Nautilus, built another boat only 15 feet long, 5 feet beam, 2 feet 3 inches deep. He first named her the Mermaid, but a showman offered him $500 down and a tour at $100 a week to change her name, so he called her the Dark Secret, after a play of that name then touring the States. He left Boston on the 17th of June, 1888, and after being buffeted about for 68 days in terrible weather he was picked up by the ship Nor only 150 miles from Boston and taken back to America.

There were two other small boat voyages made this same year, both terminating successfully, and, singularly enough, both were men who adopted this means of getting home from a foreign country.

Capt. Joshua Slocum, who later achieved fame as skipper of the Spray, was captain of the ship Aquidneck, which had been wrecked on a sandbar off the Brazilian coast. From the material in the wreck he built himself a big, decked dory, 33 feet long, 7 feet 6 inches beam and 3 feet deep, rigged with three masts and batten sails like a Chinese junk. On July 23, 1888, this queer craft, which he had named the Liberdade, with the Captain, his wife, baby and two sons, started on a 5,000-mile voyage for his home in the United States. The Captain's own story of this trip has been published in one of the New York monthly magazines.

The other voyage of that year was equally remarkable, and it is a coincidence that in each case the men built their own boats under great difficulties in far-off countries. In Vol. II of the *Yachting Monthly Magazine* (of England) there is a photo of a boat that was then being built in South Africa, and the name—For England, Home and Beauty—well expressed her mission.

From Potchestroom, South Africa, this

(*Continued on page* 324)

## Flooding the Carburetor

Flooding of the carburetor is a common cause of engine trouble. When the motor stops, it is often found, upon examination, that gasolene is leaking from the carburetor out of the float chamber. The first thing to be done is to unscrew the top, or cap, of the carburetor with a screwdriver, first making sure that the cocks leading to the gasolene tank are closed. After getting at the float chamber, if the float is submerged, look at the hinge connecting float to the valve to see if it is stuck or if any dirt particles have lodged in it, preventing the float from automatically closing the gasolene valve. If the hinge works all right the float should rise to the surface. It sometimes happens that the float binds along the side of the chamber. This may be caused by the carburetor not being set level, in which case it must be trued up with a wrench until the float rises and falls without touching the sides of the chamber.

## Preventing Mildew on Sails

Many different processes have been tried to keep sails from mildewing, some of which are very detrimental to the canvas. The best thing for new sails is to soak them in clean sea water. Before doing this the sails should be used for several days, in order that all parts of them may be able to adjust themselves to the strains caused by the winds.

For the mildew-proofing the following formula will be found to be a very good one and will not injure the canvas: Dissolve 1 pound of sulphate of zinc in 40 gallons of water; add 1 pound sodium carbonate. When dissolved, add 2 ounces tartaric acid. This holds the partially separated zinc carbonate without neutralizing the excess of the alkali. The canvas should be soaked in this solution for twenty-four hours. Then dry without wringing.

## Leverage on Rudder

Will you advise me on the following: What leverage in inch-pounds should I figure for a quadrant for a 2′ 6″ x 2′ 6″ immersed portion of a rudder? This boat is almost flat-bottom, 40′ x 12′ cruiser houseboat with a speed of 6 miles per hour.

A. R. T.

The turning moment on your rudder, using the ordinary formula with a maximum helm angle of 35 degrees, works out at 2,093 inch-pounds. The formula is:

$M = ACV^2d \sin^2 \theta$;

M = Turning moment about axis in foot-pounds;

A = Area of rudder surface in square feet;

C = Constant = 2.85235;

V = Velocity of current past rudder in knots;

d = Distance of C. E. of rudder surface from axis in feet;

$\theta$ = Angle of rudder with axis of ship.

For 35 degrees the C. E. of rudder is about one-eighth of its breadth forward of the C. G. of its area.

## Use a Suitable Oil Can

A small can with a suitable spout for pouring oil into lubricator cups is useful. An ordinary engineer's oil can will do, but makes a slow job, and to attempt to fill a small lubricator by pouring from a large container can is generally to court disaster. Thick cylinder or crank case oil is generally poured straight from its own can into the crank case filling orifice.

## The Rule of the Road

Describing a recent collision in New York Harbor in which a ferry boat and a carfloat in charge of a tug were engaged, a New York newspaper described the cause of the collision as follows:

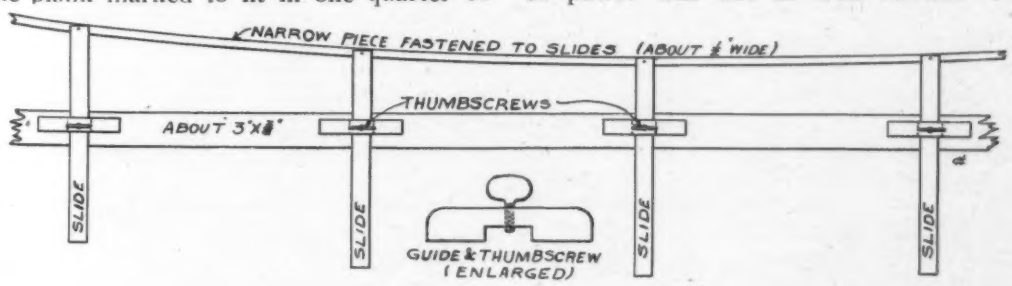
"The captain of the ferry boat, seeing the float and tug ahead, blew one blast to signify that he would pass the latter on his port hand, and the captain of the tug thereupon blew two blasts to signify that he undersood and that it was all right. The collision followed." Is it any wonder?

## Rule Staff for Taking Spiling

THE accompanying diagram shows a rule staff used for taking a spiling in getting the shape of the planking for a boat. It was sent in by one of our readers, a boat builder, who has used it for the last ten or twelve years. It consists of a wide piece, as long as the plank which it is desired to cut, 3 inches wide and ⅜ inch thick, made preferably of basswood, as this is least liable to split. It has a number of guides, as shown, placed about 24 inches apart, fastened with screws and with slots cut in them slightly larger than the slides. A quarter of an inch thumb screw passing through the guides holds slides when adjusted.

To use, the wide piece is fastened to frames with clamps, care being taken that it is bent on in the natural shape. The thumb screws are loosened and the slides moved so that the narrow piece fastened on the ends of them is pushed up against the plank which it is desired to match or fit, and the thumb screws tightened to hold the slide in position. The whole staff is then taken off, laid on the board that is to be cut and marked to the shape of the narrow piece. You thus have the shape of the plank marked to fit in one quarter of the time that is possible to get it in any other way.

To get the other edge, lay out the widths required and adjust the slides to the marks and pencil the line, and you have a true edge, easy to fit the next plank.



JOYETTA, A CLASS "R" BOAT OF TO-DAY, SHOWING THE GREAT CHANGE THAT HAS TAKEN PLACE FROM THE TYPE ON THE OPPOSITE PAGE

## An Argument for Buying Engines on the Installment Plan

Some literary gems occasionally come through the mail in the guise of business letters. The following was sent us by the Wolverine Motor Works, who received it from one of their "prospects" in Arkansas with whom they had been corresponding concerning the purchase of one of their engines in the earlier days of the internal combustion motor, when reliability of this type of power was not as well known. The author certainly puts up a strong arguments against buying for cash:

"GENTLEMEN:

"Yours of the 12th to hand, and in reply will say I never new a man to have a balky horse that wanted to sell on time; he will sell cheap, but for cash. I may buy one of your motors, but I don't think Nit. I've got just as much confidence in your motors running as you seem to have in me paying for one.

"Nuff sed, Yours truly,

"....."

## Proper Mixture for Efficient Firing

The question is often asked, What percentage of gas and air is requisite for the most efficient firing of an engine? As a rule, explosions can be obtained in ratios varying from 8 to 1 to 32 to 1, the former figures being for air and the latter for gasolene. The higher the compression the "leaner" the mixture can be. It is, however, impossible to start on too lean a mixture, from 8 to 12 parts air to 1 of gasolene being the best for starting purposes, the gasolene being thinned down after the engine gets warmed up. There is no rule for a fixed percentage of air to gasolene which can be used satisfactorily.

# Prowling Through the Sound

BY HENRY J. PECK

(Illustrated by the author)

THE mate and I came down with boat fever very early in the spring. We came all the harder for having but recently returned to a salt atmosphere after a two-years' arid inland residence. After seeking relief for six or eight weeks in yachtatoriums far and near, the malady finally ran its course, and left us yacht-owners.

She had been wintering near New York on the Sound. We lived in a Narraganset Bay port. As the terms of sale did not include delivery of boat, it behooved us to do our own delivering—a fine excuse for a cruise right off the bat.

As there were a few little things to be done before we could enter upon the happy state of cruising, I went down to do them.

The Prowler was a "Maine-built bo't," with a deep keel and a long bowsprit. I was not keen about bowsprits, never having used one, but this craft looked good enough to be ours, in spite of the undesirable appendage. Also, it seemed reasonable to suppose that bowsprits have their uses or there would not be so many of them.

Although the calendar said "May," a cog had slipped somewhere and let in a big chunk of July. That I escaped a sunstroke during the days I spent in getting the boat ready for sea must have been due to anticipation of the mate's arrival, and I was still on deck, though considerably wilted, when she finally stood in the Prowler's presence.

Until then, as it had happened, the mate had seen only a portrait of this particular craft, and evidently, from her exclamation, had in her mind's eye something of schooner-yacht proportions.

"My! What a little boat!"

Expecting, as I was, enthusiastic expression of delight and approval, this seemed chilly, but was, doubtless, beneficial to my overheated system. Although I had been congratulating the Prowler on the roominess of her cabin, I was anxious lest a week on a 25-foot overall sloop should prove irksome to one who had never before slept on a boat for a single night. And here was the mate beginning to feel cramped before we were even started.

I pointed out the cabin's generous proportions, but began to doubt myself, when I tried to stow away the additional cargo of feminine flummeries. Imagine, ye cruiser, a fragile piece of headgear with a tall, upstanding feather bestowed among the jugs and anchors!

The moment for departure had arrived, bringing the former owner, who had kindly offered to sail with us a short distance and show me how to run the engine.

Aha! The plot thickens. An engine! Yes, a 5-horsepower affair snugly stowed under the bridge deck.

As I had never run anything more complicated than an ice-cream freezer or a lawn mower, it seemed advisable to find out at least how to make the thing go, and stop it when desirable. I realized that there must be a few other things necessary to the mental equipment of a first-rate gas engineer, but I could pick those up as I went along. Heretofore I had always scorned motor boats as being tame, noisy and odoriferous. Now I excused my possession of a boat with a motor by conceding that a little power would come in handy occasionally to outwit a white-ash breeze or a head tide.

By way of demonstration, the Prowler was to start her travels by motor power. Our mentor jiggled the wheel a bit, and the engine started up pertly, and we were off for Narragansett.

Even by virtue of gasolene it was good to get away from the sizzling boat yard into the bracing air of the open Sound. As we rolled merrily along I imbibed single-cylinder, two-cycle-make-and-break knowledge, and then the engine was stopped. I was to make it go again.

I did, but not gracefully nor at once; and my puffed-up feeling was reflected in the mate's face as I lifted mine, flushed, but triumphant, through the companionway.

Now that I had mastered the motor (!) we made sail on the yacht. After previous experience of the simple and unassuming cat, it seemed somewhat like graduating to a full-rigged ship, so numerous and complicated appeared the ropes I was expected to keep straightened out. The long-anticipated moment had arrived, and we were really "prowling."

At Port Chester we dropped anchor and pilot and prepared for the first night aboard. The boat's very comprehensive equipment, combined with the contents of two large bags we had sent from home, rendered waste room in the cabin a negligible quantity. By some rearranging we gained a square foot or two, and after the lamp and the oil stove had been prevailed upon to refrain from smoking, we got supper, washed the dishes, and felt very domestic.

Although the mate was now and again reminded forcibly that one is not supposed to stand upright in a 4½-foot cabin, she evinced, on the whole, remarkable adaptability to life on the ocean wave, and went into especial raptures over the mattresses, which were made so as to let down à la Pullman.

I was on deck saying good night to the anchor-warp and light, when a weird shriek rent the misty atmosphere. Instantly the mate's head popped up through the companionway.

"Where's the fire?" she asked breathlessly, evidently forgetting for the moment she was not at home and hearing the factory siren.

"Only some sea cow wandering around in the fog," I replied reassuringly.

The mate, who was timid about cows, said she was glad we had no red light up, and disappeared below. The bovine bellow continued intermittently as the haze thickened, but was no match for Morpheus, who assumed and held sway until long after sunup.

Next morning the mate blossomed out in full yachting regalia, even to the stars on the collar. Time to get under way, and light air ahead! A good time to air my motor requirements, and I confidently announced that I would start the engine. Secretly I was not so confident, but I turned on all the things that ought to be turned on and, seizing the crank, turned the wheel around until it snapped, and was not at all surprised that nothing happened. I repeated the motion. Ominous inertness of machinery! The mate said nothing, and again I gyrated the wheel, without avail.

Mindful of the instruction book's warning that an engine's refusal to go is due to some little oversight on the operator's part, and should not call forth maledictions on the machine and its makers, I carefully checked up my obligations. Gasolene in tanks—air cock open—engine oiled—good spark—gas turned on—water turned on—exhaust turned on—switch turned on. I could discover no missing link.

Still the engine maintained a cold and unresponsive demeanor. I was far from cold, and at last declared, disgustedly, that we could sail, if we couldn't "mote." The mate's air plainly expressed her opinion of my engineering, but we began to make sail. The endless fathoms of rope up forward of the mast seemed to take a malicious delight in getting tangled up with each other. The jib stuck and refused to go up until I discovered that the halyard I pulled so manfully was attached to the staysail, still in stops. I got the right rope, but still the thing declined to budge, and at last it dawned on me that the down haul was a down hold as well.

Impatience possessed the mate, but finally we were off, and with many tackings succeeded in passing the Captains, big and little, Greenwich and Stamford. When not working the headsail sheets, the mate amused herself by picking out the buoys on the chart and searching the horizon for the

real ones. Although an untried craft, of a rig unfamiliar to her new skipper, might be expected to display some peculiar traits of character, the Prowler proved very tractable; and in the later afternoon was pulling down on Sheffield Island. As the breeze was getting very tired our chances for reaching the island did not appear good, however, and the mate said, "Why don't you try to start your engine?"

Why not, indeed! A near calm, the desired haven four miles away, and a perfectly good motor loafing below and probably laughing in its muffler at us. I climbed dubiously below, wondering if motors ran any better of afternoons than early in the day. Then I had one of those inspirations which visit me so conspicuously seldom. From some secluded corner of my mind the word priming suddenly bobbed to the surface. I seized upon it as it were the proverbial straw. Often, as a boy, had I primed the pump at home. It was an idea I could grasp. Keeping a discreet silence for fear it might, after all, come to naught, I carefully did all the things I ought to have done, and then filled with gasolene the little cup on top of the cylinder and let it run inside. I turned the wheel—and lo!—a cough and a splutter from the machine. Again I tried and got three coughs and splutters. Once more I administered the dose—and the engine ran!

Straightening up for air as matter-of-factly as possible, and incidentally to receive the mate's homage, I was just in time to hear instead a horrified exclamation:

"We're going backward! Quick—stop it—stop it!"

Sure enough, the Prowler was retreating in a drunken arc, as the mate clutched the tiller desperately toward her. I ducked quickly below and threw off the switch, realizing that my ardorous starting had been prosecuted with a fine disregard of the manner of bringing up the wheel. I tried again and induced the boat to go ahead, and we tasted the satisfaction of getting into harbor and giving a "dead clam" the laugh.

We went ashore and did some shopping, consisting of potatoes, *Evening Sun*, and ice-cream soda, for which latter delicacy we had developed an appetite at Port Chester.

The glassy water and reflections of the harbor in the evening offered me a good opportunity to exhibit one of the greatest charms of cruising which I had been treasuring in my mind for the mate's edification. She was duly impressed but the soporific attractions of the port berth soon proved too strong for her, and I was left alone to my pipe and my reflections.

Sparkling northwest weather was the order of the morning, with a very evident breeze along with it. The Prowler may have been mild and plodding the day before, but now she was as frisky and pranksome as a colt. I have an indistinct recollection of an ungraceful though capering getaway, with reefed mainsail—some complication of rigging and an unruly headsail.

"STILL THE ENGINE MAINTAINED A COLD AND UNRESPONSIVE DEMEANOR"

A lively thrash around Greene's Ledge, where the Prowler perversely refused to run before the wind for a while, but finally took the bit in her teeth and went careering away at a great rate! The mate had been looking as if she couldn't quite persuade herself that she was having a good time, and gave a sigh of relief when the yacht's skittish antics were settled down into a long, steady stride. This was the first thing like a breeze of wind that had come our way. It made ultramarine of the Sound, and sent a long procession of puffy "biscuit" clouds scurrying up from behind the clear-cut coast line. Several schooners strung out along the Sound appeared steady and unyielding and the mate seemed to think I ought to make the Prowler travel as sedately, but I reminded her that she had been pining for a life on the bounding billow.

"Is that steamer coming this way?" wondered the mate, indicating a far-distant spot. It eventually transpired that the "steamer" was neither coming nor going, and as we drew nearer yet, was transformed into a lighthouse. Consulting the chart, we agreed that Black Rock would satisfy us for that day, and there was far from any excuse for me to show off my motor accomplishments in reaching an anchorage.

Two bells (on the dishpan), and the call to soup was quickly heeded. For dessert we went ashore and sampled the Bridgeport brand of ice-cream soda. We laid in stores also. This would mean, ordinarily, a can of meat, a loaf of bread and a pie. But the steward's idea of the appropriate fare for shipboard resulted in a sirloin steak, asparagus, lettuce, Parker House rolls, roquefort cheese, strawberries, creampuffs and chocolates. A suggestion of mine that this was a rather unusual salt-water diet was met by the retort that I probably would dispose of my share of it, which, it must be confessed, proved to be too true.

Sunday morning, but the Prowler was on her way before any church bell had a chance to awaken in us a slumbering sense of duty. A Paddy's hurricane was raging, and after two or three drinks, H. P. was cajoled into helping us scud out of the harbor under bare poles. The hurricane's fury having much abated an hour later, our accommodating friend was given the rest of the day off, and the sails were hoisted.

After feeling her oats in so lively a manner the previous day, Prowler had sobered down again into a sedate and leisurely gait. She jogged along steadily, affording the crew plenty of opportunity to admire the view, which was spread charmingly on every hand. Although the chart tried to entice our craft from the tenor of her way into one or another attractive little harbor, Prowler evidently had other plans in view.

"THE PROWLER FINALLY TOOK THE BIT IN HER TEETH"

As the afternoon waned we began to suspect that the boat was making for Duck Island Roads, and just as the sun was balancing on the upper edge of Connecticut the Prowler slid behind one of the duck's sheltering wings. It was beyond doubt a wild duck. A duckling sloop or two snuggled close to the rocky shore, and two others roosted high on the duck's scraggly back. The entire population, consisting of the bronzed light keeper and his wife, and half a dozen barking, capering dogs, turned out to greet us.

"A Maine-built bo't, ain't she?" the captain inquired, as we rowed up to the beach. "I thought so. Used to own that bo't myself—if 'twan't her, 'twas her twin sister."

Having a meagre acquaintance with the Prowler's past, we gave the captain the benefit of the doubt, as he seemed so pleased to recognize an old and tried friend. But a great blow was in store for us. Duck Island boasted no ice-cream-soda fountain. We bore up bravely under the deprivation, and were consoled with fresh hens' egg and chicken lobsters—paradoxical products, considering the place.

We had hard work to tear ourselves away in the morning, so fond seemed the Duck of our society, visitors being doubtless infrequent at that season. But we felt that we really must be going, so got the engine to wrest the anchor from the detaining grip upon it.

The wind and tide, too, evidently wanted us to stay there, judging from the progress we didn't make against them; but the kicker again came to the rescue and pushed the Prowler along past Saybrook lights. Then the wind got ready to blow our way and sprang upon us so vigorously from the south that I thought a reef would be appropriate, and proceeded to act accordingly.

The mate was considerably disquieted by this manœuvre, accusing me of giving orders too technical for her to execute, and also took exception to the flappings and plungings indulged in by the Prowler. Apparently the mate had the idea that a boat hove to, was in a parlor state. She became nervous at any luffing or sail-shaking stunts, while, of course, under all circumstances, I was as cool as a cucumber. The reef had a sobering effect on the boat, and we kept her off for Bartlett's Reef lightship which loomed up ahead.

The Prowler's course was apparently approved by chart and compass, but suddenly athwart her path appeared a streak which looked suspiciously like water breaking over something near the surface. It seemed quite surprising to run across Bartlett's Reef at that particular place—at least it, no doubt, would have been surprising if we had found ourselves suddenly trying to run across it. Having no desire to do this, I jammed the tiller down. The breeze, however, had maliciously dropped out again, and the Prowler was not at all spry about hieing away from what seemed an unhealthy neighborhood for her.

I sprang below, and after hurriedly executing every little movement, our mechanical friend made her get a move on, and do a discreet detour of the lightship, before desisting. Then it occurred to me that maybe, after all, we had been running away from a harmless tide-rip.

"Oh! Look over there! See what a pretty boat—and what a high one!" exclaimed the mate. Gazing toward New London I saw a craft whose spread of canvas could identify her as nothing less than a "cup" yacht—and our evening paper later proclaimed the arrival of the Vanitie in those parts.

The Prowler seemed to feel ashamed of loafing along with a short sail in the presence of this famous craft, and as I was just about to shake out, the erratic breeze rose up from behind Fisher's Island and said, "Don't be in a hurry." Down it swooped on the Prowler, now putting her lee rail awash, now letting her up for a breathing spell, and we were weary of this cat-and-mouse performance before the wind decided to let the quarry escape. The breeze finally made itself so very scarce that our little friend below got a job of towing us up into Stonington Harbor, the mate remarking that for one who would use a motor only semi-occasionally I would have to exercise some self-restraint in the near future to keep down the average. All jesting aside, however, there is no doubt that a little power now and then is relished by all sailor men.

We took hardly time enough to roll the sail up decently, so anxious were we to get ashore for our favorite indulgence. On board, we had settled down after supper and dishwashing for a quiet game of Canfield. "Prayer meeting!" exclaimed the mate when a bell rang out on the evening silence, as if in rebuke of our unholy pursuit. As the bell still tolled an hour or so later, the mate thought the congregation must be awfully slow in gathering. Going on deck to look at the stars, she cried, "Why, it's all foggy!"

"Yes," I replied; "you've been getting your religious qualms from the fog bell."

As the bell was still ringing in the morning we could not see our way clear to sailing around Point Judith, as per schedule. This enforced tarrying was just the opportunity for a housecleaning mania, which I had several times alarmfully observed slumbering in the mate, to break out in full force. There was no escape.

The upheaval began. Lockers yielded up from hitherto unexplored depths new treasures, and objects not treasurable. In a short time the cabin was a chaos of bedding, oilskins, anchors, warps, spare lines, unaccountably snarled; dishes, oil stove, food, (assorted), oil, jugs, socks and many other more or less nautical appliances. As a seasoning for this marine salad, a sprinkling of our fourth lamp chimney was added, my head, as usual, having knocked it from the lamp as I delved around the mast.

Justice compels me to admit that when order was finally restored the cabin seemed one-half larger than formerly. As an antidote, the ship's company went on a voyage by trolley, and discovered Mystic, returning home in a good humor, and so to bed.

Although the wind was mostly up and

down the mast, at an early hour we were prowling well beyond Watch Hill, as I had shamelessly started the motor the first thing. The fog had a hangover, but not enough to be objectionable; and notwithstanding our humorous experience with Bartlett's Reef, the compass handed us the buoys with precision and despatch.

The Prowler affected a swaggering gait, which showed that we were really getting out to sea, and a large fishing steamer, which loomed out of the mist and rolled past us, inspired the mate with the fear that she would roll entirely over—a fear apparently unshared by the yellow figures moving about her deck. As it breezed up a little we stopped the engine, and sailed. The audible silence, created by cessation of the machinery chugging, gave the dim line of white to the north a chance to send the ominous booming to our ears.

Evidently the mate was enjoying the life on the bounding main, and finally, when we had just begun to pull Point Judith out of the mist, inquired when we were going to strike that long stretch of open water I had been talking about. Taking for granted that she knew from the symptoms, even if the horizon was invisible, that there were several thousand miles, more or less, of water south of us, I had not considered it necessary to say, "Now we are on the ocean." She seemed quite surprised, and of the opinion that Point Judith wasn't such a terror after all.

Soon the wind left us, while the main became even more bounding, and from lilting joyously along, the Prowler began to toss uneasily in a sphere of sultry grayness, in which the slatting of the sails, the surf's muffled roar and the moaning of the whistling buoy made a disquieting commotion.

There was something in the air which said that Old "P'int Jude" had no intention of letting us get by without a reminder that she was still on the job. The mate seemed not quite so happy, and a towering bank of thunderous looking clouds now

"IT'S GOING BACKWARDS—STOP IT!"

discernible in the northwest impelled me to abandon a policy of watchful waiting and let the motor work while the weather was getting ready to do something. I took in the sails, excepting the jib, and turned Prowler's head toward home.

My thunderstorm petered out after all, the southerly wind having merely paused for a long, strong breath. The jib rounded out, and the seas very soon began to live up to their reputation. As the engine burbled and snorted busily, pulling us gradually away from a dingy sail which had come in from seaward ahead of us, I let her go as she was.

Every time the Prowler rolled way down on the starboard side, over the exhaust opening, in some big hollow, I thought the motor would surely strangle, but it kept on gasping and sputtering. I think the mate wished she had reserved her opinion of Point Judith, when the extra big seas rose behind the Prowler as if about to swallow her up, and made her yaw and bury her nose more violently than usual.

Castle Hill at last, and quieter water; and with anchor safely down in Newport Harbor in mid-afternoon, the captain and crew were satisfied to call it a day's work.

Newport was next door to home, anyway. The run up the bay in the morning would be a mere bagatelle. I have often observed, however, that just at the end of some arduous performance you are apt to run against a snag. The Prowler didn't exactly hit a snag, but a husky head wind and tide combination, which kept her back about as effectually. The farther north we got, the slower we went, until I indulged in the motor habit.

For weeks I had pictured the proud moment when the Prowler, cynosure of all nautically inclined eyes, should sail majes-

(*Continued on page* 325)

## Can a Boat Go Faster than the Wind?

On page 192 of April issue of YACHTING it is related that the absolute limit of speed of a yacht is the velocity of the wind. This statement is only accurate in case the yacht is headed dead before the wind. An ice-yacht travels across the wind many times faster than the velocity of the wind, and on a reach across the wind our inland racing scows at times attain a speed surprisingly near the velocity of the wind.

DOUGLASS VAN DYKE.

The statement you quote of course applied only to sailing yachts, as everyone knows that sailing across the wind an ice boat may travel much faster than the wind. The same does not hold true with sailing yachts of the displacement type, where there are many controlling factors to their speed, such as displacement, friction, various kinds of resistance, and the like.

We don't know of any authentic claims of sailing yachts having traveled faster than the wind, although many types may very nearly approach the speed of the wind on a reach, especially such types as you mention, which have very little displacement and friction. Often the breeze aloft is stronger and a boat may appear to go faster than the surface wind.

If any of our readers have evidence to the contrary we should like to hear from them.

## Wheel for a 26-Footer

I expect to install a 12-horsepower (Kermath) engine and standard reverse gear in a standing cabin launch 26 feet overall and 7 feet beam. What size wheel would you advise? Would you recommend setting the engine on a level keel and using a universal joint on the shaft? W. E. J.

As your boat is fairly heavy, and taking the average engine revolutions at 800, you would need a three-bladed wheel of 16 inches diameter by 18 inches or 19 inches pitch. I think that you will find that this will give you good results, unless your boat is unusually heavy. In regard to setting the engine level and using a universal joint, we do not believe you have much rake to your shaft and, therefore, with the engine only slightly off level, there would not be much to gain by using a universal joint. However, if you want your engine level a universal joint can be used satisfactorily without any appreciable loss. You want to see, however, that your engine bed is firm and well fastened, and your engine bolted down thoroughly to the bed pieces.

# Displacement Without a Planimeter

BY H. W. PATTERSON

WHEN getting out the lines for a boat it is necessary to make two or three, sometimes more, calculations for displacement and position of the center of buoyancy (C. B.) before the desired results are obtained. Simpson's first rule is generally used for these calculations, and it is assumed that the reader is somewhat familiar with it.

For the uninitiated, the displacement of a vessel is the weight of water that she displaces. If we could get a cast of the vessel's underwater body and fill it with water the weight of this water would be the displacement. The center of buoyancy is the geometric center of gravity of the underwater body. Simpson's rule is a method of obtaining the area of a figure bounded by a straight line and a curve, or the volume between a plane surface and a curved one.

Briefly, the procedure is as follows: The load water line (L. W. L.), or underwater body, is divided into an even number of equal spaces. These dividing points are called stations, and the sections, as shown on the body plan, are drawn at these points. The stations are numbered, No. 1 usually being at one end of the load water line, usually forward. The cross-section areas in square feet of the underwater body at these stations are then put through Simpson's rule, as shown in the following displacement calculations of a 30-foot runabout.

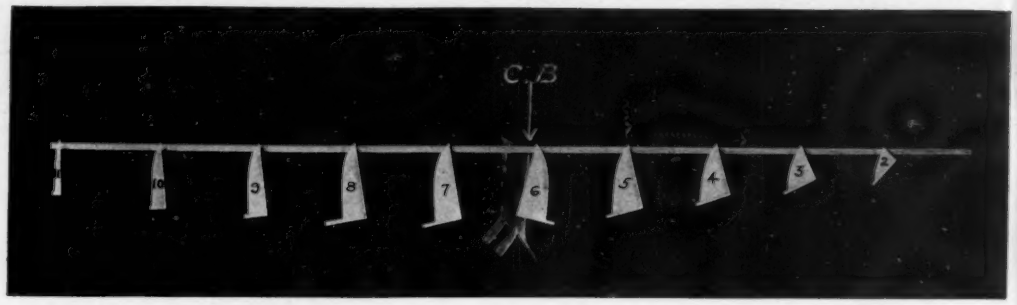
30 FT. RUNABOUT — SHEET #1

DISPLACEMENT & C.B. by PLANIMETER — INTERVAL = 3 FT.

| STATIONS | HALF AREAS | SIMPSON'S MULTIPLIERS | FUNCTIONS | ARMS | MOMENTS |
|---|---|---|---|---|---|
| 1 | | 1 | | | |
| 2 | .44 | 4 | 1.76 | 1 | 1.76 |
| 3 | .82 | 2 | 1.64 | 2 | 3.28 |
| 4 | 1.22 | 4 | 4.88 | 3 | 14.64 |
| 5 | 1.47 | 2 | 2.94 | 4 | 11.76 |
| 6 | 1.64 | 4 | 6.56 | 5 | 32.80 |
| 7 | 1.60 | 2 | 3.20 | 6 | 19.20 |
| 8 | 1.45 | 4 | 5.80 | 7 | 40.60 |
| 9 | .97 | 2 | 1.94 | 8 | 15.52 |
| 10 | .61 | 4 | 2.44 | 9 | 21.96 |
| 11 | .26 | 1 | .26 | 10 | 2.60 |
| | | | 31.42 | | 164.12 (5.22) |
| | | 1/3 INTERVAL = | 1 FT. | | 157.10 |
| | | | 31.42 SQ. FT. | | 7020 |
| | | | 64 | | 6284 |
| | | | 12568 | | 736 |
| 5.22 | | | 18852 | | |
| 3 FT. INT. | | | 2010.88 LBS. | | |
| C.B. = 15.66 FT. AFT OF #1 | | | 2 | | |
| | | | 4021.76 LBS. DISP. | | |

Referring to this displacement sheet: The areas at the ends, if any, are multiplied by 1, even-numbered areas by 4, and odd-numbered areas by 2. The sum of these products or "functions" is then multiplied by 1/3 the interval in feet between stations, which gives the volume required in cubic feet. This figure divided by 35 gives tons, or multiplied by 64, pounds, displacement. In practice the areas for only one side of the boat are used and the final result multiplied by two.

To obtain the center of buoyancy each function is multiplied by the number of intervals between it and No. 1 station. The sum of these products or "moments" divided by the sum of the functions and the quotient multiplied by the interval in feet gives the distance in feet the center of buoyancy is from the No. 1 station at the forward end of the load water line.




BALANCING THE MODEL SECTIONS TO FIND THE CENTER OF BUOYANCY. NOTE PIN AT NO. 1 SECTION

This is a quick and simple operation for the naval architect, as he reads the areas of the sections with a planimeter, an instrument for measuring the area of any plane figure; but for one without this instrument it is a long and tedious job. Each section must be divided into numerous geometrical figures, their areas calculated and combined, or numerous ordinates drawn, measured and put through some rule for obtaining areas of surfaces bounded partly by curves. This means a lot of work, and a mass of figures where errors are apt to creep in.

Ordinates are lines drawn at regular intervals, on which lengths are measured for calculation. The stations mentioned above are ordinates.

With a view to simplifying this work I will describe a method which is comparatively simple and, if carefully done, fairly accurate; also being mostly mechanical, it involves much less chance of error.

## Method by Weight

If the drawing is on heavy paper it will first be necessary to make a pencil tracing of the underwater body sections. Then, using carbon paper, transfer each section (one side of boat only) to a good grade of cardboard and cut them out carefully with a sharp knife. Something about 1/32-inch thick answers very nicely, but it is most essential that the material is of uniform thickness and density. These cardboard sections are next accurately weighed in grains or any convenient weight unit. Also cut from the same material a rectangular piece representing any number of square feet, to the proper scale, and weigh this. Divide this weight by the number of square feet in the piece to obtain the weight for one square foot. No doubt, very few have scales fine enough for this work, but any jeweler or apothecary will do it in a few minutes.

Now arrange a displacement sheet, substituting weights for areas, and make the calculation in the usual way, except that the sum of the functions is divided by the weight obtained for one square foot of the cardboard before being multiplied by 1/3 the interval.

So far as I know, this idea is new, and to test the practicability and accuracy of the method I figured the displacement of the same 30-foot runabout. Working from a tracing, it took thirty-five minutes to transfer and cut out the sections. Weighing by an apothecary took little time, so that three-quarters of an hour would be ample for the mechanical part and less than an hour would complete the whole job. The result is shown in the displacement sheet No. 2.

30 FT. RUNABOUT — SHEET #2

DISPLACEMENT & C.B. by WEIGHT — INTERVAL = 3 FT.

| STATIONS | HALF WEIGHTS GRS | SIMPSON'S MULTIPLIERS | FUNCTIONS | ARMS | MOMENTS |
|---|---|---|---|---|---|
| 1 | | 1 | | | |
| 2 | 2. | 4 | 8. | 1 | 8. |
| 3 | 3.875 | 2 | 7.75 | 2 | 15.50 |
| 4 | 5.75 | 4 | 23.00 | 3 | 69.00 |
| 5 | 7.125 | 2 | 14.25 | 4 | 57.00 |
| 6 | 7.625 | 4 | 30.50 | 5 | 152.50 |
| 7 | 7.375 | 2 | 14.75 | 6 | 88.50 |
| 8 | 6.25 | 4 | 25.00 | 7 | 175.00 |
| 9 | 4.5 | 2 | 9.00 | 8 | 72.00 |
| 10 | 3. | 4 | 12.00 | 9 | 108.00 |
| 11 | 1.25 | 1 | 1.25 | 10 | 12.50 |
| | 48.75 | | 145.50 | | 758.00 (5.21) |
| | | | | | 7275 |
| | | | | | 3080 |
| SUM OF FUNCTIONS / GRS. PER SQ. FT. | 145.50 / 4.56 = 31.90 SQ. FT. | | | | 2910 |
| | 1/3 INTERVAL = 1 | | | | 140 |
| | | | 31.90 CU. FT. | | |
| | | | 64 | | |
| 5.21 | | | 12760 | | |
| 3 FT. INT. | | | 19140 | | |
| C.B. = 15.63 FT. AFT. OF #1 | | | 2041.60 LBS. | | |
| | | | 2 | | |
| | | | 4083.2 LBS. DISP. | | |

It will be noted that this displacement is 62 pounds more than given in sheet No. 1, which was figured from planimeter readings—a difference of about 1½ per cent. I am quite safe in saying that in most cases the calculated weights of the boat are in greater error than this. Certainly for boats of this type, or any boat the amateur is likely to design, it is close enough, as it is only the weight of a small boy, and such a boat would carry from one to ten people.

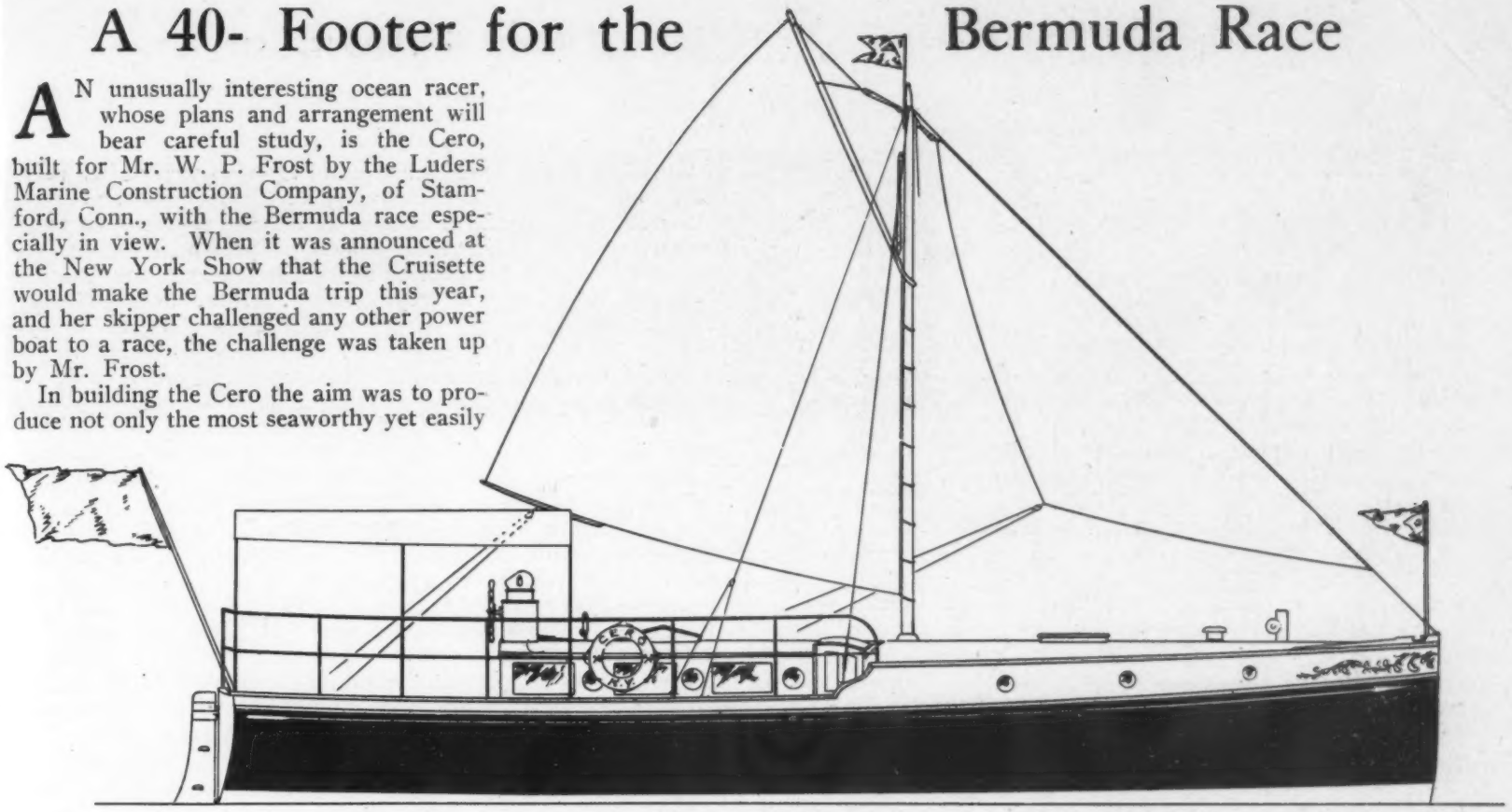
A still simpler method for displacement alone is as follows: Divide the total weight

(*Continued on page 324*)

# A 40- Footer for the Bermuda Race

AN unusually interesting ocean racer, whose plans and arrangement will bear careful study, is the Cero, built for Mr. W. P. Frost by the Luders Marine Construction Company, of Stamford, Conn., with the Bermuda race especially in view. When it was announced at the New York Show that the Cruisette would make the Bermuda trip this year, and her skipper challenged any other power boat to a race, the challenge was taken up by Mr. Frost.

In building the Cero the aim was to produce not only the most seaworthy yet easily driven hull, but also to get an interior layout that would, as far as possible, eliminate the discomforts and trying conditions that are usually had below in an ocean race on a boat of this size.



To that end Cero was given good displacement, with generous draft, a deep forefoot, plenty of deadrise, yet easy fore and aft lines, so that she can be driven at her most efficient speed with moderate power. There will be no tendency for her head to fall off with the wind and sea on either bow, and she should ride to a sea anchor under a riding sail without any trouble.

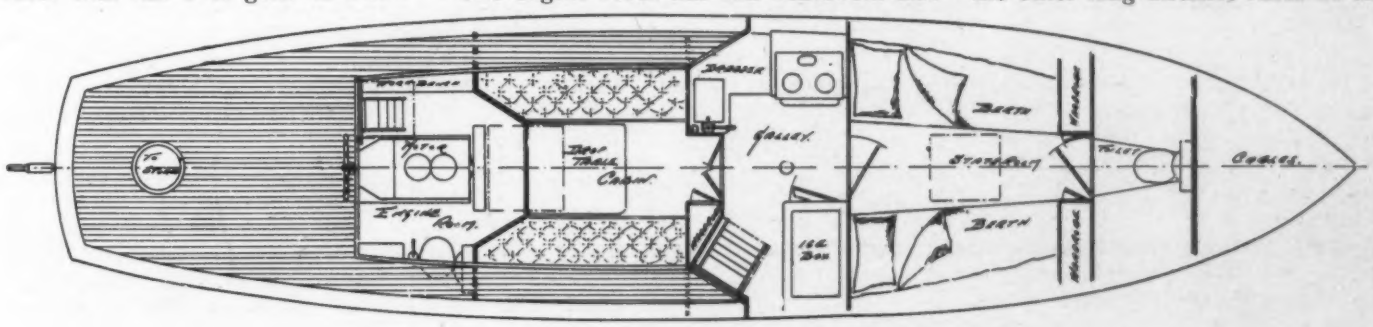
Her general dimensions are: Length, 39 feet 11 inches; beam, 9 feet 4 inches, and draft, 3 feet 6 inches.

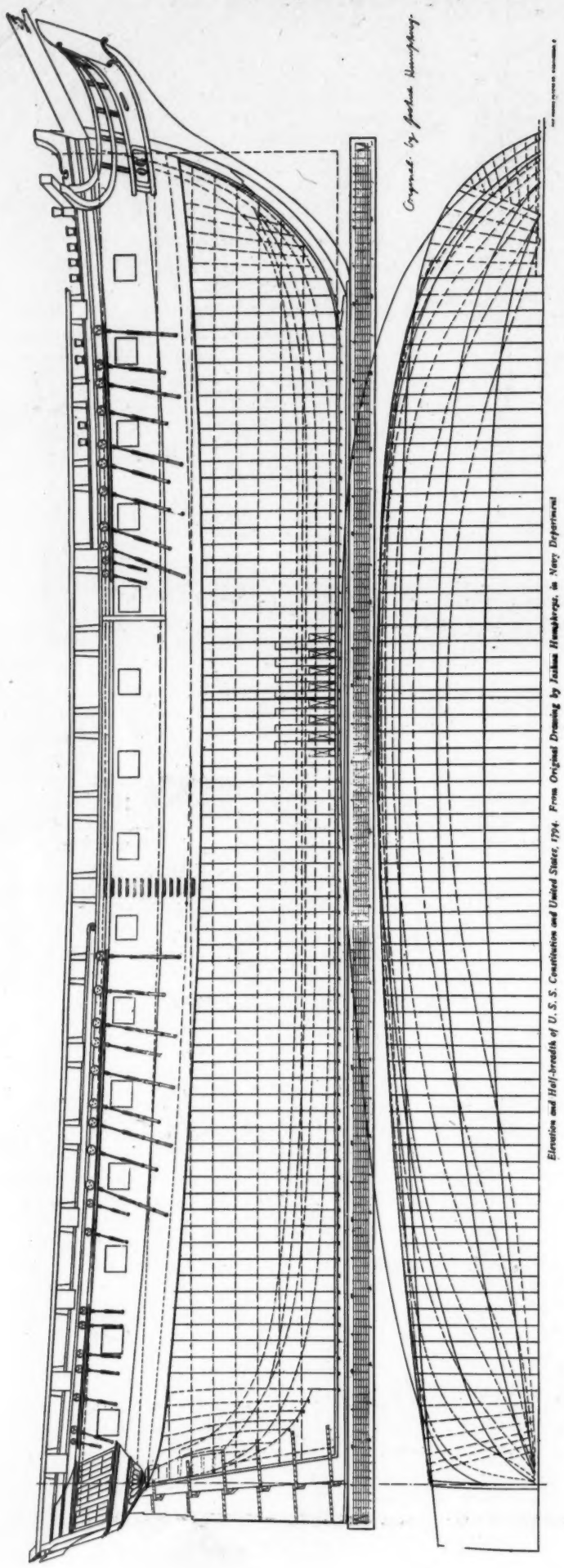
Below decks the arrangement is ideal for an ocean trip. The engine room is in the after part of the cabin, separated by a water and gas-tight bulkhead from the living accommodations, with an entrance through a separate companionway opening on to the after deck, where it can be reached in any weather. This eliminates the fumes of the engine and the stink of gasolene in the cabin, which has been the experience of every racer that has ever gone to Bermuda heretofore. The entrance to the living quarters is by a companionway on the starboard side placed at an angle of 45 degrees with the side of the boat. It leads into a sort of vestibule, on one side of which is located the galley. This gives a good place to shed wet oil skins and prevents the carrying of the water into the living quarters. The galley is also amidships, where better ventilation is had and where it properly belongs, as everyone knows who has tried to cook in a seaway with the galley way up in the eyes of her. There is a large ice box in this compartment. Forward is a full-sized stateroom with a berth with a spring mattress on either side, two wardrobes and a large toilet room with folding wash basin and the usual fittings. Abaft the vestibule is a saloon with a transom on either side and a drop table which, when not in use, hinges back against the engine-room bulkhead. The table is reversible, so that on the under side can be fastened a track chart, where it is at all times handy and easy to use. This arrangement below makes it possible for the watch off duty to get sleep without being disturbed every time anyone comes below.

The engine room has full headroom and is ventilated by half of the saloon sky-light and by two side ports, while the companionway doors can be left open in any but the severest weather. The power is a 2-cylinder, 6" x 8", 4-cycle Mianus engine which is rated at 16 horsepower, though it develops considerably more than this. She has a tank capacity for about 1,100 miles, the tanks being located under the after deck and in the fore peak under the cable locker. Fresh water is carried in tanks under the stateroom floor. Great attention was paid to the weights and to the tankage so as to avoid change of trim in the using up of either fuel or water.

Under the rules of most offshore races a boat of this length is allowed but 200 square feet of sail, and that amount is carried in jib and mainsail, the mast going right through to the keel and not being stepped in a socket on deck, as is the case in most power boats.

It is a pity that the Cruisette has been withdrawn from the race and that there is not sufficient sporting blood among the owners of other boats suitable for offshore cruising to enter in a contest of this kind. The Cero, however, will be seen in most of the other long-distance races of the season.





Elevation and Half-breadth of U. S. S. Constitution and United States, 1794. From Original Drawing by Joshua Humphreys, in Navy Department

# Plans of the Frigate Constitution

IT is not generally known that two of the most famous vessels that ever fought under the American flag, the Constitution and the Constellation, are still carried on the roll of the Navy to-day, one hundred and eighteen years after their launching. The Assistant Secretary of the Navy, Franklin D. Roosevelt, has collected a number of hitherto unpublished facts concerning their construction, which he presented at the last general meeting of the Society of Naval Architects and Marine Engineers, together with reproductions of the lines of these famous frigates, and the other so-called 44-gun frigates of the period. The plans of one of these, the Constitution, endearingly known to every American as "Old Ironsides," are reproduced herewith by permission.

It was principally due to the depredations of the Barbary pirates shortly after the close of the Revolution, which all attempts to check through diplomatic channels failed, that led to the authorization by Congress of an appropriation with which to build four ships to carry 44 guns each and two ships to carry 36 guns each. Joshua Humphreys, of Philadelphia, was authorized to make calculations of material and prices and to get up detailed drawings for the vessels. The records show that Mr. Humphreys' compensation was placed at $2,000 per year "in consideration of his incessant application to the public interest in adjusting the principles of the ships, drawing up draughts and making models, etc." One of the ships was the Constitution, and she was built at Boston. Humphreys' report gives her the following dimensions:

Length of gun deck from rabbet of stem to post, 174 feet 10½ inches.

Length of keel, 145 feet.

Molded breadth of beam in the extreme part, 43 feet 6 inches.

Height of wing transom above rabbet of the keel, 25 feet 8½ inches.

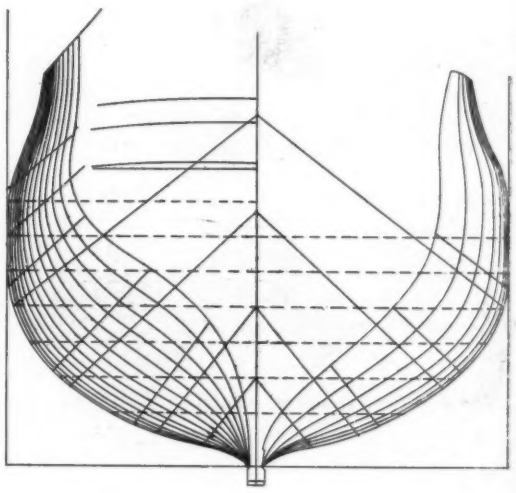
Height of lower-deck transom above rabbet of keel, 20 feet 9 inches.

Height between gun deck and lower deck, 6 feet 4 inches.

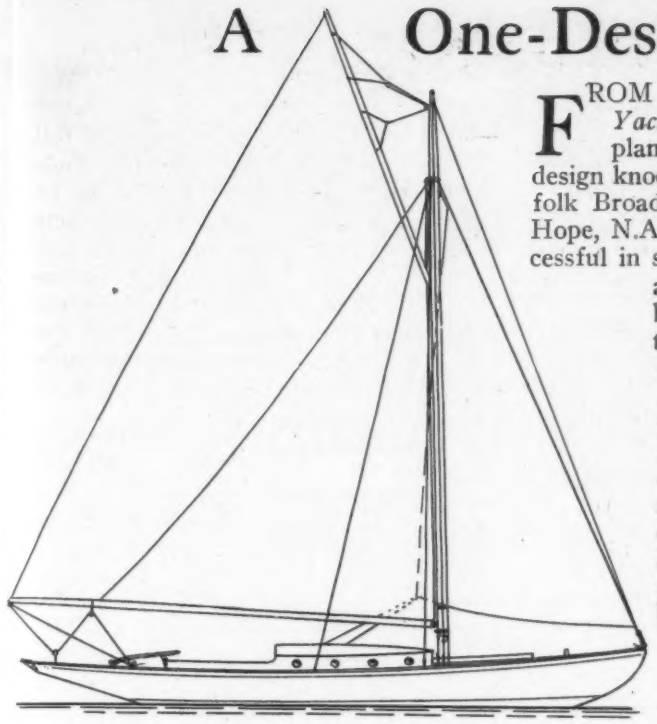
While Humphreys was responsible for the design of the vessel, it is stated that Captain Thomas Truxton worked out the spars and sail plans.

It was intended to make these ships the most powerful and, at the same time, the most useful of any in existence, and from the construction it was expected that "the commanders of them would have it in their power to engage or not any ship they may think proper; and no ship under a 64 now afloat but what must submit to them."

The ships were built by the Government under the supervision of a naval agent. Work on the Constitution started at Boston in 1794 and was continued with a number of interruptions until the fall of 1797, when she was launched on the 21st day of October. The records do not show when she was actually ready for sea, but on the 13th of August, 1798, she was ordered to patrol the coast under command of Captain Nicholson, on account of our quasi-war with France. Her record and her principal victories, which were the capture of the British frigates Guerriere, Java, Cyane and Levant, during the next twenty years, are familiar to every school boy.



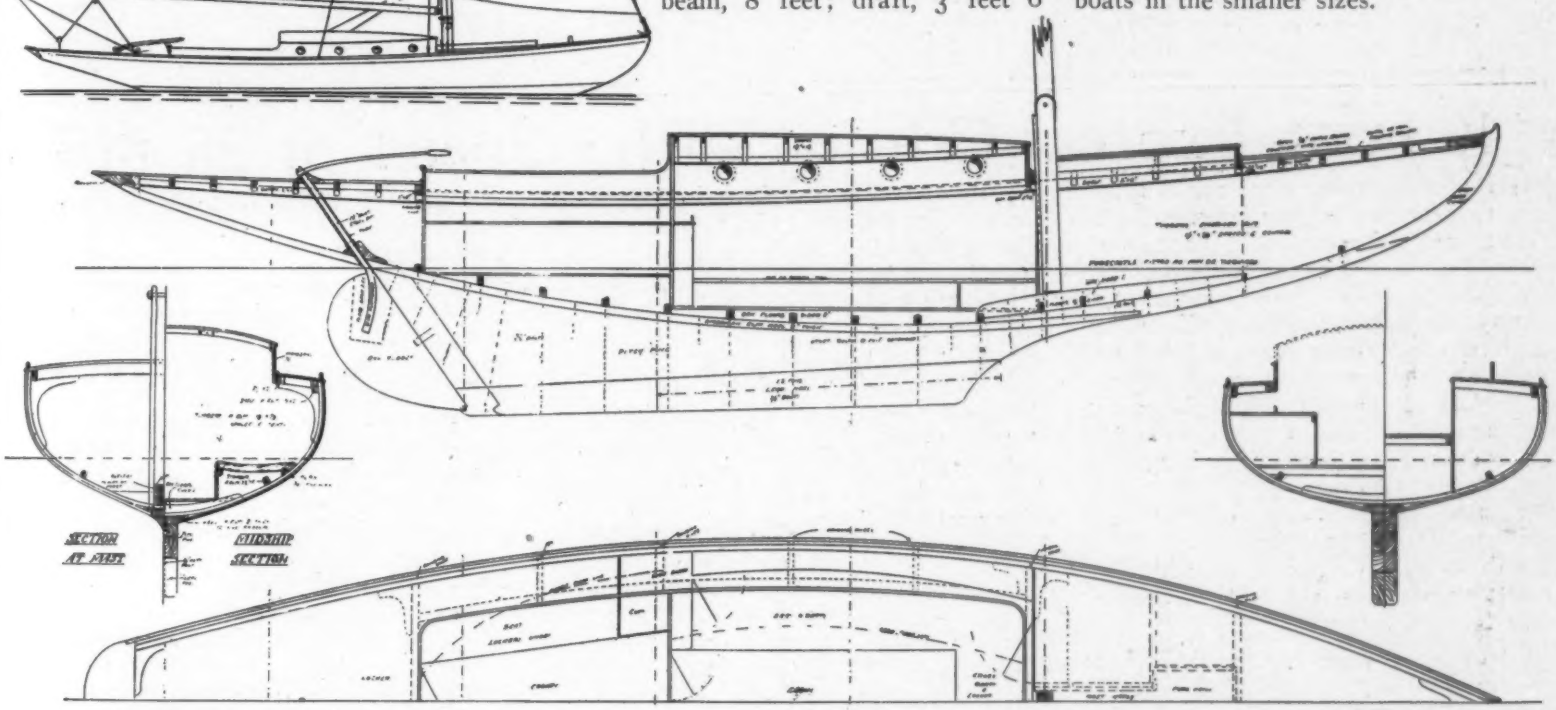
# A One-Design Knockabout Class



FROM our English contemporary, *The Yachting Monthly,* we reproduce the plans of a 24-foot waterline one-design knockabout class for use on the Norfolk Broads, from designs by Mr. Linton Hope, N.A., who has been particularly successful in small-boat designing. The boats are interesting in many ways, but chiefly by comparison with the knockabouts of the same size produced in this country.

Local conditions on the Broads restricted the draft to 3½ feet. As it was decided not to use a centerboard the boats were given a longer keel than usual in boats of this type. The general dimensions are: Length overall, 34 feet; waterline length, 24 feet; beam, 8 feet; draft, 3 feet 6 inches; sail area—mainsail, 419 square feet; sail area jib, 124 square feet. The boats are wholesome, able-looking little craft with pleasing sheer and good fore and aft lines, though the sections are a little too round to suit the average American's idea.

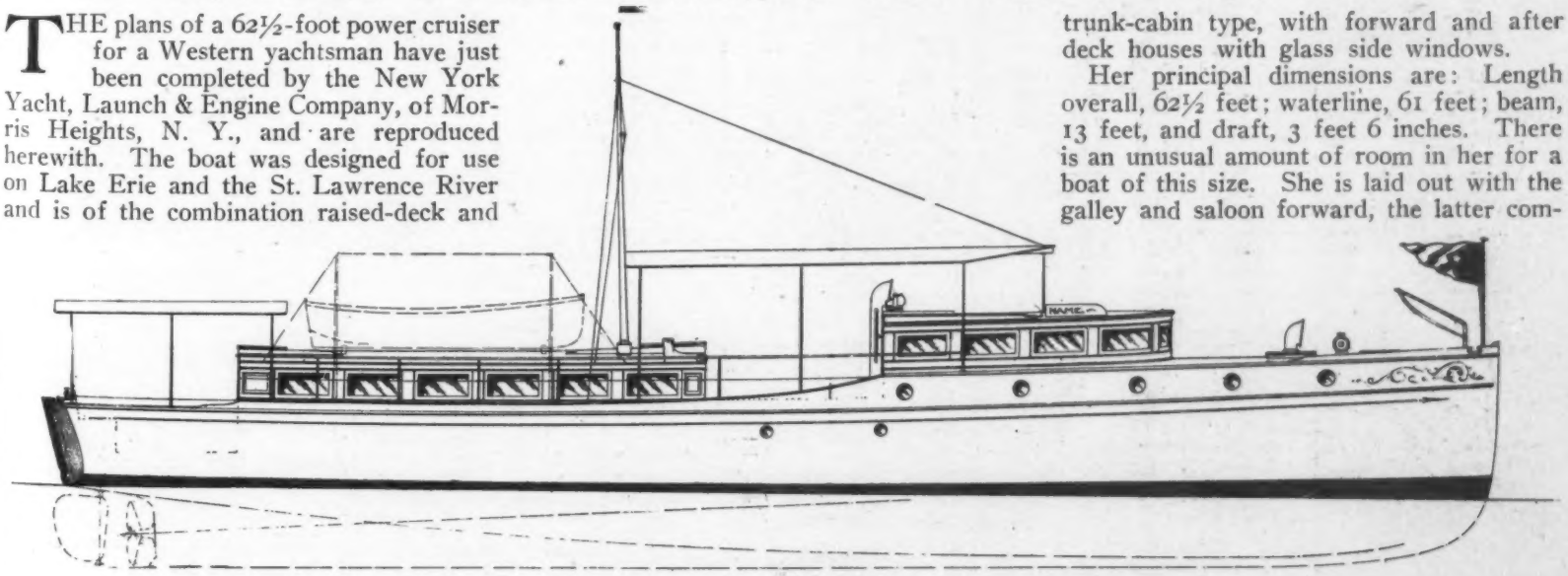
Though intended primarily for racing, the boats have a snug cabin with fairly good sleeping accommodations for two. They will be raced with a crew of three men and are rated under the Boat Racing Association formula 22 3/10 feet, just about the size of our Class "R" boats on this side. According to *The Yachtsman,* this type of boat is very different from that produced under the International Rule, especially in displacement distribution. The latter rule has not succeeded in turning out desirable boats in the smaller sizes.

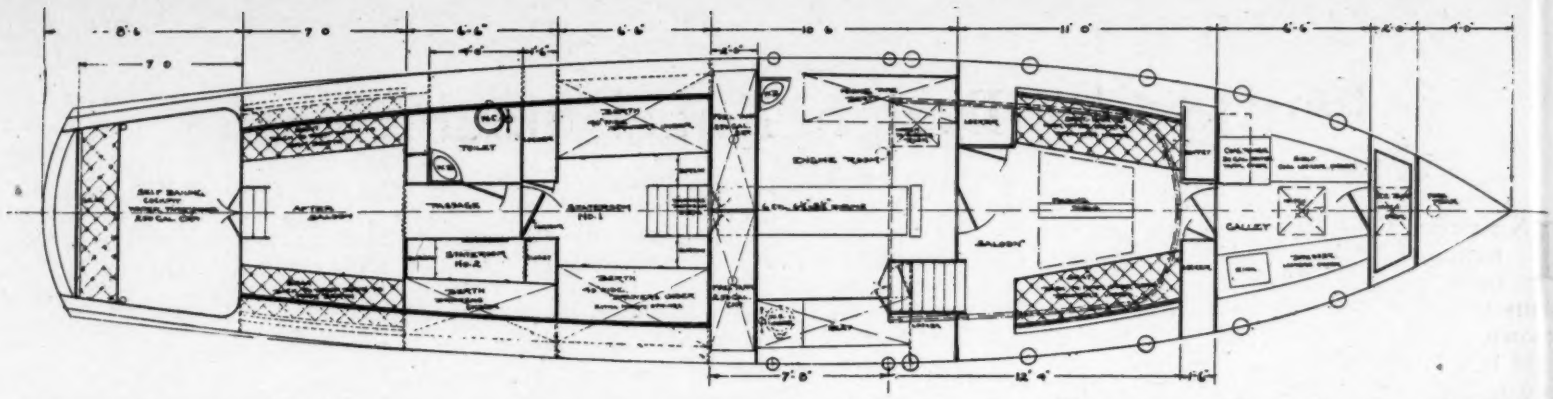


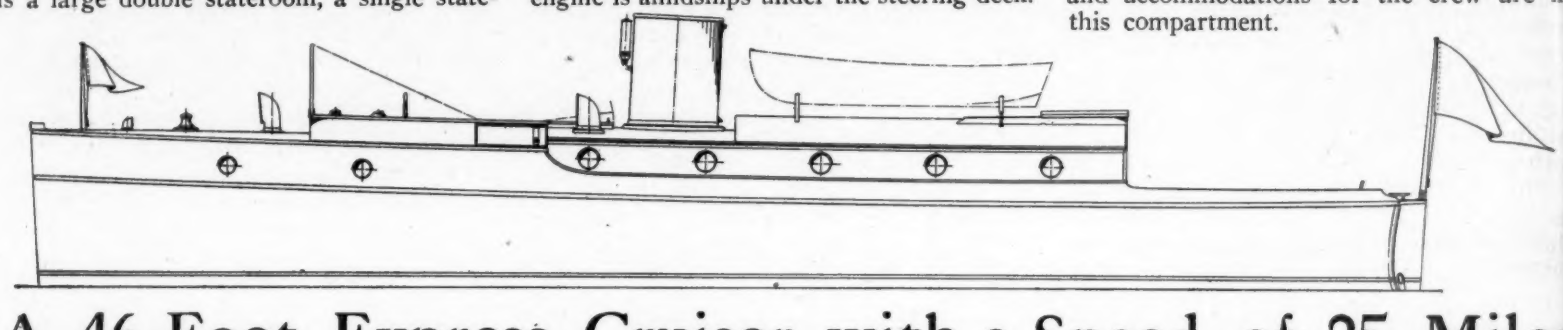

# A 62-Foot Power Cruiser for the Great Lakes

THE plans of a 62½-foot power cruiser for a Western yachtsman have just been completed by the New York Yacht, Launch & Engine Company, of Morris Heights, N. Y., and are reproduced herewith. The boat was designed for use on Lake Erie and the St. Lawrence River and is of the combination raised-deck and trunk-cabin type, with forward and after deck houses with glass side windows.

Her principal dimensions are: Length overall, 62½ feet; waterline, 61 feet; beam, 13 feet, and draft, 3 feet 6 inches. There is an unusual amount of room in her for a boat of this size. She is laid out with the galley and saloon forward, the latter com-







# A 46-Foot Express Cruiser with a Speed of 25 Miles

THE accompanying plans are of a fast twin-screw cruiser designed by Swasey, Raymond & Page, Inc., for Mr. Harold Wesson, of Springfield, Mass. This boat is of the new express cruiser type, which is becoming so popular, having very comfortable quarters below and on deck, and a speed of about 25 miles an hour. Notwithstanding the high power, boats of this type can be made seaworthy and can do a great deal of cruising in a limited length of time.

The general dimensions of the boat shown here are as follows:

Length overall, 46 feet; length waterline, 45 feet 7 inches; beam, 8 feet 7½ inches; draft, 1 foot 9½ inches.

Her cabin arrangements are well worked out. Forward, under the raised deck, are quarters for the crew, with two pipe berths, toilet and folding wash bowl, and with a chain locker in the fore peak.

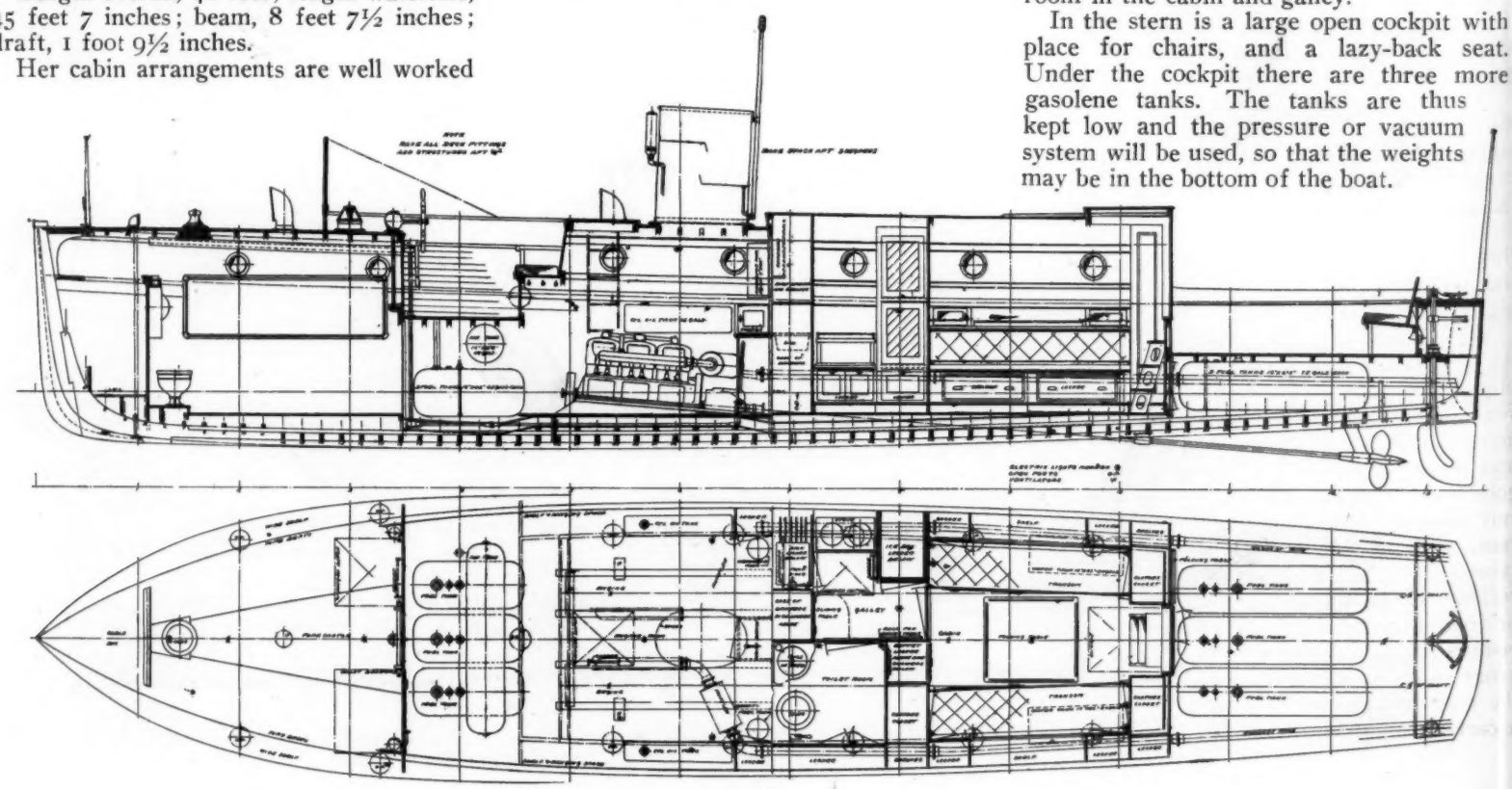
Just abaft the forecastle bulkhead is a very convenient steering cockpit, or well, sunk deep into the boat, so that the operator will not be high in the air. This is protected by a spray and wind shield and has steering wheel, binnacle, engine controls, gages, tachometers, etc., installed at the forward end, with a comfortable seat in the after part. Under this cockpit are the gasolene and compressed air tanks.

Abaft the bridge is the engine room, which contains two Sterling 90-horsepower, high-speed, 6-cylinder motors, work bench, oil tanks and auxiliary machinery. The engine room is ventilated by a large stack and two cowl ventilators. It is separated from the rest of the boat by two steel water- and gas-tight bulkheads.

Next come the galley and owner's toilet rooms, which are unusually well arranged. Under the after part of the cabin trunk is a comfortable cabin for two persons, with clothes closets, book shelves, drawers, sideboard, etc. There is over 6 feet of head room in the cabin and galley.

In the stern is a large open cockpit with place for chairs, and a lazy-back seat. Under the cockpit there are three more gasolene tanks. The tanks are thus kept low and the pressure or vacuum system will be used, so that the weights may be in the bottom of the boat.

partment having extension transoms on either side to form berths, while the backs swing up, making upper berths. Aft there is a large double stateroom, a single stateroom and an after saloon which can also be used as a stateroom if desired. There is also a good-sized toilet room aft. The engine is amidships under the steering deck. The power will consist of a 6-cylinder, 6½ x 8½, 65 horsepower Twentieth Century motor. A pipe berth, wash basin, toilet and accommodations for the crew are in this compartment.



# Position by Bearings of a Single Object

BY CHARLES H. HALL

IN running along the coast every opportunity should be taken to check up one's position. Otherwise, if a fog shuts in suddenly your position will not be known exactly, as the information that a light is somewhere over to starboard from two to five miles distant is not very valuable. Whenever possible, cross bearings of two objects should be taken. If these are plotted on the chart and due allowance made for any compass error an accurate position is obtained, the boat being at the point of intersection of the plotted lines. Frequently, however, there is but one object in sight that can be properly identified on the chart and position must be fixed with reference to it.

There are several methods of doing this. In certain cases a single bearing of this object will be of value, as there may be outlying dangers to be cleared by keeping a certain course, or keeping a lighthouse, for instance, within a certain bearing. For example, in Fig. 1, if the object A is kept N.W., or, at least, the bearing is not allowed to be to the northward of N.W., it is evident that the outlying shoals will be cleared. On the other hand, if A bears,

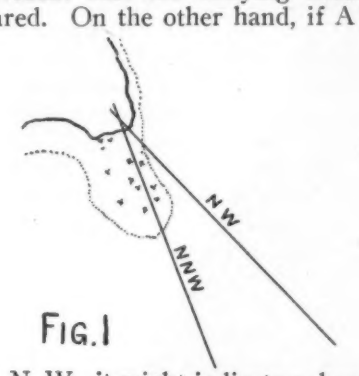



FIG. 1

say, N.N.W., it might indicate a dangerous position.

A single bearing, combined with a sounding (due allowance being made for the stage of the tide, if there is considerable range), will fix a vessel's position approximately. A single bearing with the distance from the object will also fix position; but this is risky, as estimating distances over the water is notoriously difficult and, at night, well nigh impossible.

We come now to the methods of combining two successive bearings of the same object with the distance run between the two observations. This distance must be accurately known or the results will suffer, and it must be the distance actually made good *over the ground*—that is, the distance run through the water corrected for current, tidal or otherwise. It may be obtained by the use of the patent log (corrected by running over known distances), or from the revolutions of the engine. This last method can be quite accurate if a proper progressive trial has been held—that is, if the boat has been run back and forth over a carefully measured course at a series of different speeds, noting carefully the engine's revolutions and the boat's speed for each pair of runs.

Bowditch gives tables—one for points and one for degrees—for finding the distance from an object by this method; but this book, or even the "Useful Tables," is not apt to be found on small craft, so we need not discuss it further. The general rule is that if we take a bearing on the bow and then run until the bearing (that is, until the angle between the object and the course) is doubled, the distance run in

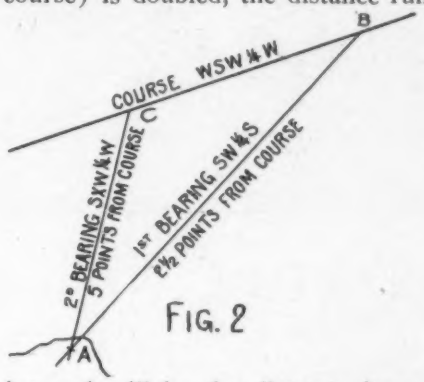



FIG. 2

the interval will be the distance from the object at the time of the second bearing. Thus, in Fig. 2, at B the object A bears 2½ points on the bow; at C it bears 5 points; the distance A C from the light equals B C, the distance run.

It is usually more convenient to take the bearings regularly; that is, instead of taking an odd number of points, as 2¾, 3½, or what not, to use certain specified points. Thus we have the two- and four-point bearing, in which the first bearing is two points on the bow and the second four points, and the more common case of the "bow and beam bearing." In this the first bearing is 4 points on the bow and the second is taken when the object is abeam, as illustrated in Fig. 3. If for any reason it is not practicable to take the first bearing 4 points on the bow, it may be taken when the object is abeam, and the second one when it is 4 points abaft the beam.

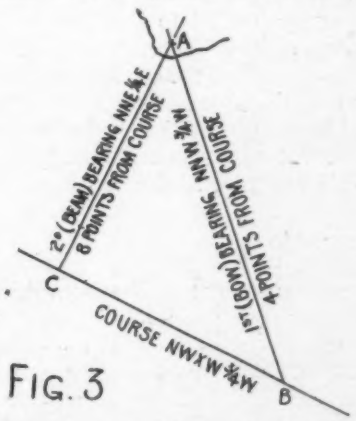



FIG. 3

The distance run will then be the distance from the object when it was abeam. Thus in Fig. 3, with the course reversed, a beam bearing is taken of A from C. At B, A bears 4 points abaft the beam, and B C, the distance run, is equal to A B, the distance when A was abeam.

We are usually more interested in knowing the distance of the mark when it is abeam, as this will be the nearest point to the course. Thus, in the two- and four-point bearing, seven-tenths of the distance run will be the distance of the object *when abeam*. If the first bearing is taken at 22½ degrees and the second one at 26½ degrees, seven-thirds of the distance run in the interval will be the distance from the object when it is abeam. This distance must be accurately taken, as any error will be multiplied. One beauty of this method is that the change of bearing is only slightly over one-third of a point, so that the operation occupies only a short time. Another seven-thirds rule is to take the first bearing 2 points forward of the beam and the second one abeam—seven-thirds of the distance run being the distance from the object on the second bearing. These are handy rules to memorize, and they need not be worked out here. They can be checked, if forgotten, by referring to Tables 5 A and 5 B, Bowditch.

The 26½-degree rule is quite commonly

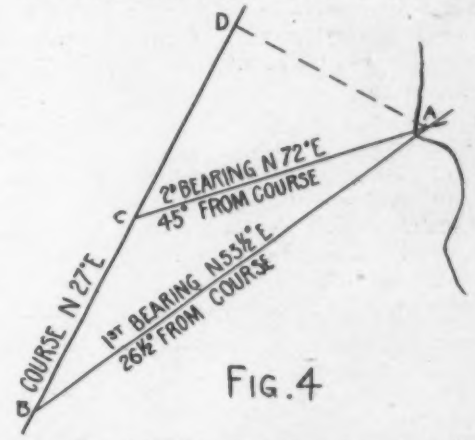
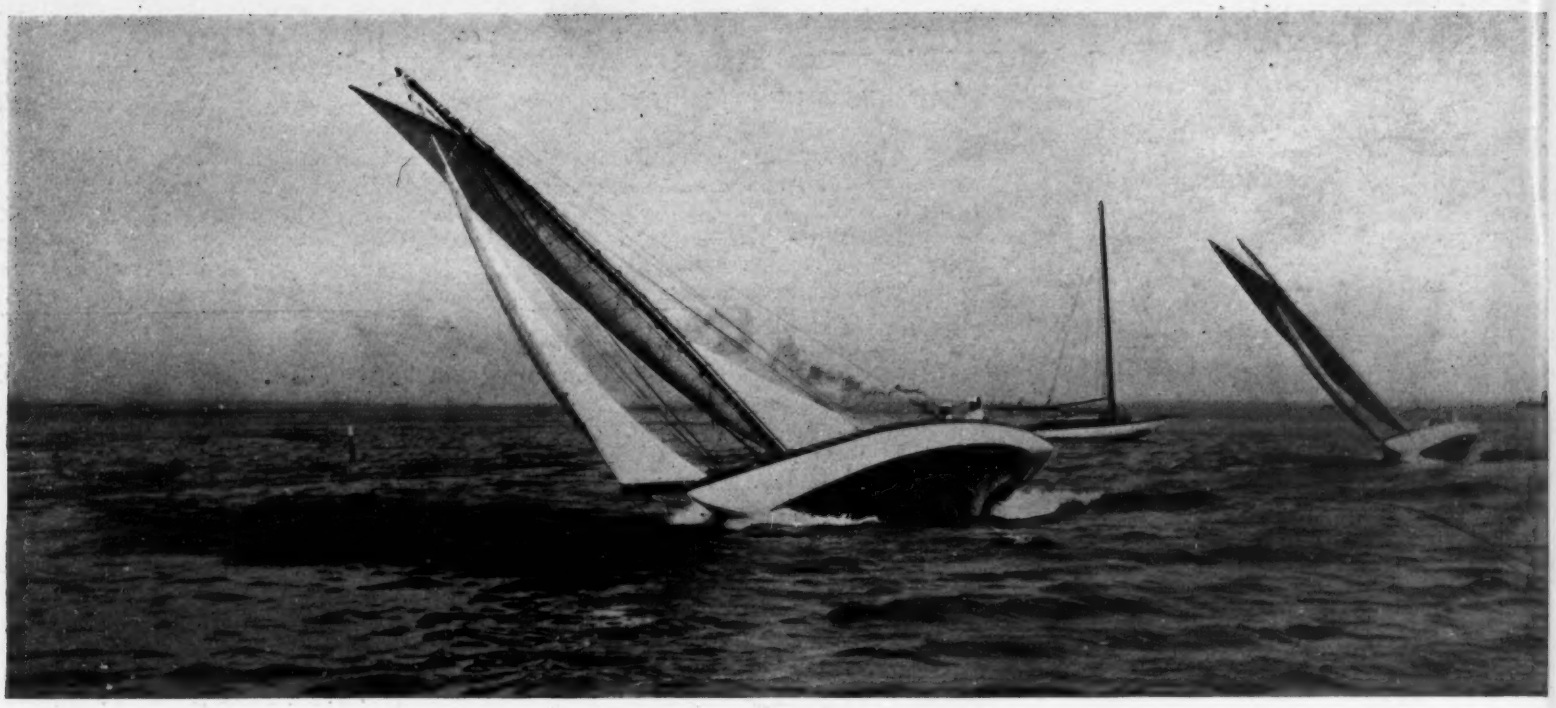



FIG. 4

used. In this the first bearing is taken 26½ degrees from the course and the second one 45 degrees. The distance run in the interval is the distance from the object *when abeam*. Thus, in Fig. 4, the first bearing of A is taken at B, when A is 26½ degrees on the bow. The second at C, when 45 degrees. The distance run, B C, is equal to the distance A D. This method is useful, as there may be outlying dangers that must be cleared, and the least distance from shore is the point of interest.

Bearings must be taken as accurately as possible. The old hand can squint over the compass and get a rough bearing, but it will not be an accurate one, and this is particularly dangerous in close quarters. The best way is to use an azimuth instrument or azimuth circle, with which observations may be taken to half a degree accurately.

Don't forget to apply the deviation of

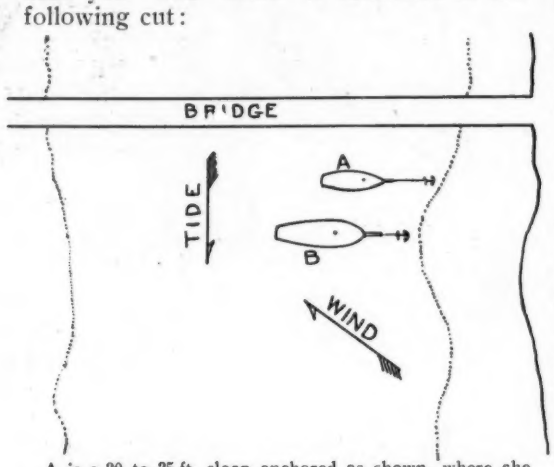


A HARD FIGHT. ONE-DESIGN CLASS RACING ON HAMILTON HARBOR, ONT.

the compass when plotting bearings, and don't make the mistake of using the deviation proper to the *bearing* instead of that for the *course*.

## Answers to Seamanship Problems

A GREAT many answers were received to the problem on getting the sloop under way singlehanded, which appeared in the May issue. There were so many that we can print but a few of them here, confining ourselves to one on each general plan of action suggested. We are glad to see that all of the shellbacks are not dead yet. The "stunt" is described in the following cut:




A is a 30 to 35-ft. sloop anchored as shown, where she swings between wind and tide, with only one man aboard. Weigh anchor, get sail on her and get out without fouling B. The shoal ahead of B prevents A crossing her bow.

### Backing Out

A should break out his anchor and drift back to a position on the other side of the channel, then let the anchor take hold again, giving only enough cable to prevent dragging. Next set the mainsail and ease the sheet if there is danger of fouling the bridge. Set jib, get the anchor and fill away on starboard tack, coming about immediately to clear B's stern. If A can fill on port tack so much the better, but considering the tide it would be difficult.

P. W. H.

### Use a Kedge

I should heave in on my anchor until the chain was up and down, then put a small kedge (I always carry one about ten pounds) about fifteen feet toward the bridge and about the same distance offshore as my large anchor. I would then heave in on the kedge line until I had the wind on the port bow, and make the line fast on the port quarter. I would now break out my large anchor and heave it up, set the jib with a well-flowed sheet and haul up my kedge. When clear of B's stern set the mainsail and haul her up on the wind. If the anchor was a small one and could be broken out by hand you could avoid the use of the kedge.

If I had no small anchor I should proceed in the following manner: It is evident that as the yacht is lying parallel to the bridge, should she drag her anchor she would drag parallel to the bridge. Taking advantage of this fact, I should break out my anchor and let her drift astern until clear of B, then give her a little more chain to hold her. I should then back my mainsail well out to starboard and haul my jib to port so as to get the wind on the port bow, then break out my anchor and sail on down the river. MILTON N. PRICE.

### Swing Ship Before Getting Anchor

The problem is along lines such as I would like to see more of in your magazine. Answer: Swing ship and anchor by stern; shorten up on rode as much as possible; set jib, break out anchor and then, I believe, one could easily work into a position where mainsail could be safely set.

May I ask how your man would get out if he waked up some time after the tide had turned and found the wind blowing strong in the same direction as the tide?

L. M. WATSON.

Answering your question, he would be into the bridge. A is supposed to have anchored only temporarily.

### Swinging to Port Under Jib

Have jib and mainsail ready to hoist; make main sheet fast as though yacht were close-hauled on the wind; make starboard jib sheet fast as though yacht were close-hauled on the port tack; haul in on the anchor cable, but do not break the anchor out until the yacht has lost headway; as she starts to make sternway, take the anchor on deck and hoist the jib; go aft and put the helm hard aport; as she loses sternway and gets the wind abeam, put the helm gradually to starboard; as she swings around and the jib jibes, leave the helm and get the mainsail on her.

RICHARD B. TAYLOR.

Doubt if there is room for this manœuvre under the conditions without danger of hitting bridge unless boat was cut away so as to pivot on her heel before making much sternway.

### Backing Head Around

Hoist mainsail; haul in, bringing her into the wind. Get mudhook aboard, up with jib or staysail, close-hauled to port. Let go main sheet. As her head swings haul in on main sheet, trim fore and aft, and clear away under B's counter about two points into the wind, providing the wind just about overcomes the tide.

Personally, this looks too much like physical culture. I'd start the "kicker."

C. F. HODGE.

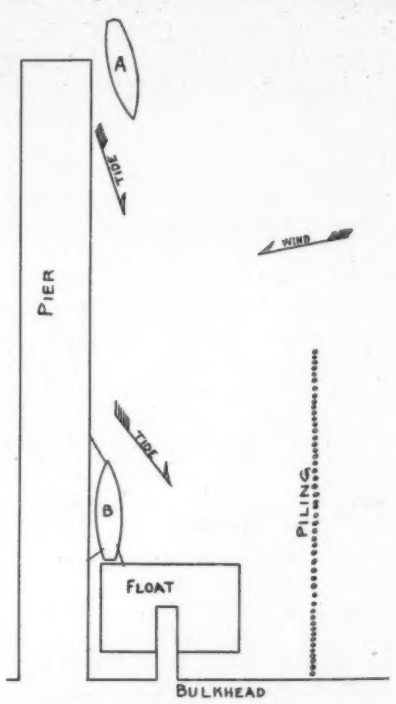
The difficulty in swinging ship or backing

her head around with the jib with mainsail set is that if she should make any sternway in the direction the wind was blowing, she would be into the bridge.

We believe the methods described by P. W. H. and Milton N. Price in backing out, and L. M. Watson in swinging ship, are the safest.

## Seamanship Problem for June

In the seamanship problem this month, presume that boat A, coming up the dock, must make a landing alongside pier with stern to float, as shown in position B, without going alongside of or getting a line to float, where it is forbidden to land, the tide and wind being in the directions shown. How would you execute the manœuvre, (1) in a power boat with a right-handed wheel that prevents the boat turning to




starboard in backing, and (2) in a catboat that must be laid alongside the dock in the same position.

## New York to Portland Ocean Race for Power Boats

Plans are being made for an ocean race for power boats from New York to Portland, Me., all the way outside, to take the place of the Bermuda Race this year and to give one real long-distance ocean race for those that want something more than short runs on sheltered waters. The date of the start will probably be July 15, from Gravesend Bay, and the finish will be off the Portland Yacht Club, Portland, Me. The Portland Yacht Club will handle the finish.

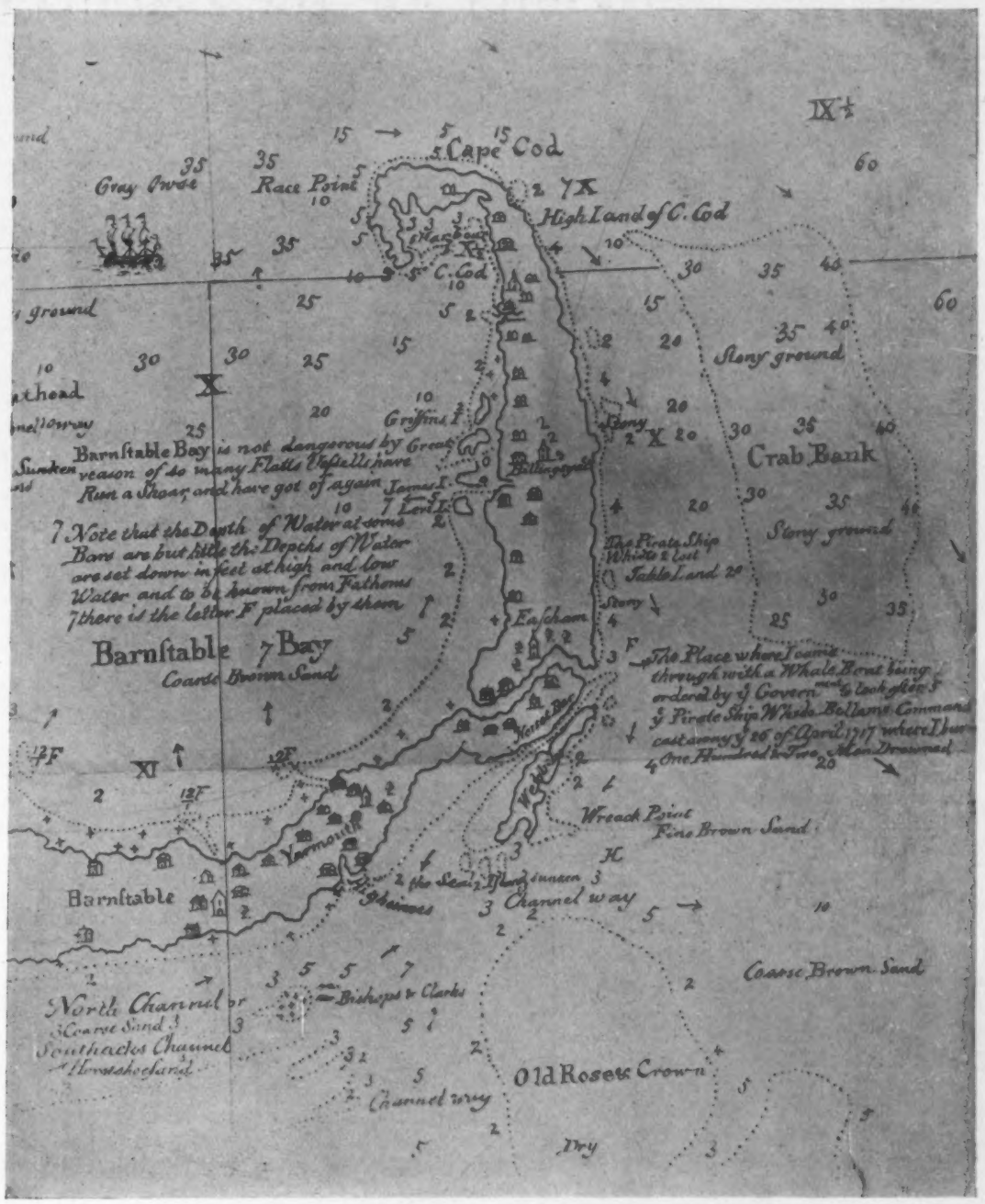
*Boats.*—The race is open to any seaworthy boats not over 60 feet overall length, or under 30 feet overall length, having engine and living accommodations housed in, and being equipped to enable her to perform long-distance passages in open water. The cockpit, if any, must be watertight.

Rating will be calculated under the 1915 rules of the American Power Boat Association and time allowance will be figured under the time allowance tables of the same association. The course proposed is outside of Long Island, Nantucket and Cape Cod, the total distance being 350 nautical miles, and boats must carry fuel for the entire distance and will not be allowed to replenish tanks on the way.

*Prizes.*—A suitable silver cup, or trophy, will be the first prize, and second and third prizes will be awarded if a sufficient number of boats start. The committee is at work on the full conditions of the race, and they may be had by writing to YACHTING, 141 W. Thirty-sixth street, New York.

This event bids fair to be the most important long-distance race of the season, the course being a particularly good one, as it combines both offshore and pilot water navigation.

The distance from Norton's Point to Sankaty Head, Nantucket, is 200 nautical miles, and from here to Portland 150 miles. After the finish boats will have an opportunity to cruise eastward along the Maine coast, the most beautiful cruising ground in this country, and the trip back can be made through the Cape Cod Canal.


Cape Cod
Gray Owse
Race Point
High Land of C. Cod
Stony ground
Crab Bank
Barnstable Bay is not dangerous by reason of so many Flatts tho all have Run a Shoar and have got of again
Note that the Depth of Water at some Bars are but little the Depths of Water are set down in feet at high and low Water and to be known from Fathoms there is the letter F placed by them
Barnstable Bay
Coarse Brown Sand
The Pirate Ship White's last Table Land
The Place where came through with a Whale Boat being ordered by the Govern & took 3 of Pirate Ship Whyde Bellamy Command cast away the 26 of April 1717 where there One Hundred & Two Men Drowned
Wreach Point
Fine Brown Sand
Barnstable
Yarmouth
Channel way
Coarse Brown Sand
North Channel or Coarse Sand
Southwacks Channel
Bishops & Clarks
Old Roses Crown
Channel way
Dry

AN OLD BRITISH ADMIRALTY CHART OF CAPE COD, OF ABOUT 1717. THIS SHOWS THE CAPE AS AN ISLAND, THERE BEING A PASSAGE THROUGH TO CAPE COD BAY AT NAUSET, THOUGH THE POSITION INDICATED IN THE CHART MAKES IT SEEM PROBABLE THAT THE PASSAGE WAS NEARER THE PRESENT CHATHAM. IT IS AN UNUSUALLY COMPLETE AND INTERESTING CHART OF THE PERIOD

# Hints for the Cabin Table

VARIETY at meals is quite as welcome when cruising (especially on the smaller yachts) as anywhere else—in fact, more so, for it is harder to get. Simple cooking on any but the larger boats and on yachts with a paid chef is, perforce, a necessity. The galley equipment of the average yacht under 60 feet in length consists either of a small two-hole coal range, or one of the many varieties of blue-flame alcohol or kerosene stoves with either two or three burners, two being the most common. Therefore, most of the cooking must be simple.

A useful little device for saucepans for use in a cramped galley or on a small stove consists of three pans, each cut in the segment of a circle, so that when the three are put together they occupy the same space as a single round saucepan or pot.

*For Making the Dishes Tasty*

Do not leave out the few little condiments wherewith you can vary the taste of common articles and serve a new sauce or gravy or pudding now and then. Nothing pays better for its transportation than *good* brands of desiccated eggs and evaporated milk. Cooked in combination with other things, they add vastly to the number and savor of your dishes.

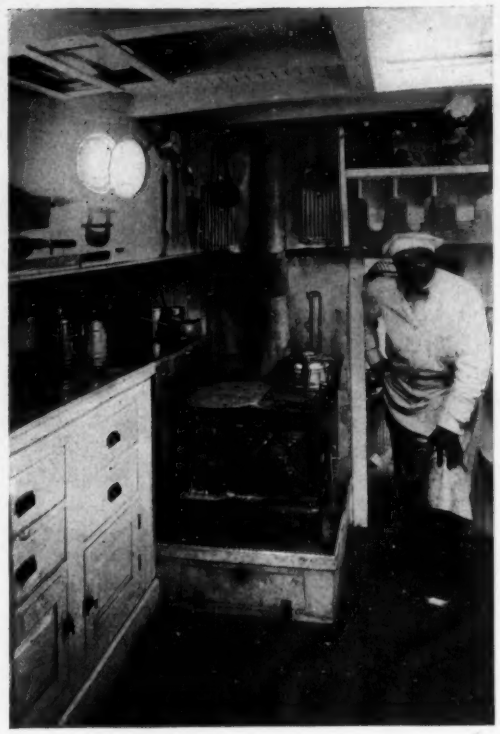
Fresh milk on a cruise of over a week-end's duration is usually out of the question, and evaporated brands are usually relied on. There are a number of good brands to be had. In coffee, especially, a good evaporated milk is equal to fresh cream, and it can always be carried with safety and will not sour.

*Coffee*

Speaking of coffee, care should be taken to see that it is properly kept on board the boat. Airtight tins should always be provided, as the coffee must be ground before bringing it aboard, and the air must therefore be kept from it if it is to retain its strength. There are a number of excellent brands of coffee on the market at present that come already ground, packed in tins of one-, two- and five-pound capacity. Among those may be mentioned White House, Hotel Astor, Favorita, etc. A handy and useful coffee is now put up, concentrated in tabloid form in little cubes that are easy to carry and won't spoil. One of these cubes dissolved in a cup of hot water makes a most delicious and well-flavored cup of coffee with the least amount of bother and no danger of getting the wrong proportions, which sometimes happens to the amateur chef. There is no excuse for poor coffee on a yacht to-day, however. Cocoa is also a pleasant morning drink, and can be used at other meals as well. It can be easily carried and kept.

*Soups*

When it comes to soups, there is nothing more nourishing and more easily prepared, or in which a greater variety can be had.



THE HEART OF THE SHIP

"You can stand a hard ship if the 'tucker' is good."

After a long, hard day's sail or during a thrash to windward in heavy weather, when much cooking is out of the question, a hot bowl of soup with pilot bread makes a warming and filling meal. Practically every kind of soup can be had in the canned variety, both in large and small sizes, while soups can also be had in concentrated form. Don't stick to the same old kinds, but vary the menus a little by trying Scotch broth, clam chowder, green turtle once in a while. Extract of beef compressed into tablet form and dissolved in hot water makes an excellent beef soup or bouillon, while, with the many soup powders on the market a variety of heavy soups, such as split pea, etc., can be quickly made.

*Meats*

On a big cruiser with a large ice box fresh meat can be carried to last three days, but upon the smaller boats there is more difficulty, and after the first day or two of the cruise, when all of the steaks and chops are used up, recourse is usually had to canned meats. Among meats that can be recommended for lunch use are rolled tongues, which can be had in glass jars; corned beef, which can be sliced and then served either as sandwiches or with a plentiful application of French or German mustard, and the many brands of minced or deviled meats and chicken. Don't forget that meats are always more tasty with some kind of a condiment, such as India relish, chutney, ketchup or one of the many sauces. Most owners don't know that they can now buy corned beef hash put up in tins of from half a pound to two pounds in weight and thus have a delicious breakfast or supper dish without the fuss and time taken in cooking potatoes and chopping them and the meat together. Another dish which makes a welcome addition to the table on a cruise is roast chicken, which is now put up whole, roasted in jelly, packed in tins.

*Washing It Down*

There is nothing so much appreciated on board ships as drinks of the non-alcoholic variety to take the place of water. Most yachtsmen fight shy of the tank water, which is usually more or less shaken up and filled with sediment after a day's run. Mineral water or ginger ale makes a good substitute. There are many brands of the former, such as White Rock, Apollinaris, Club Soda and the like, while Cliquot Club, C. & C. and Belfast are favorite brands of ginger ale. Grape juice and mineral water is also an excellent hot weather drink.

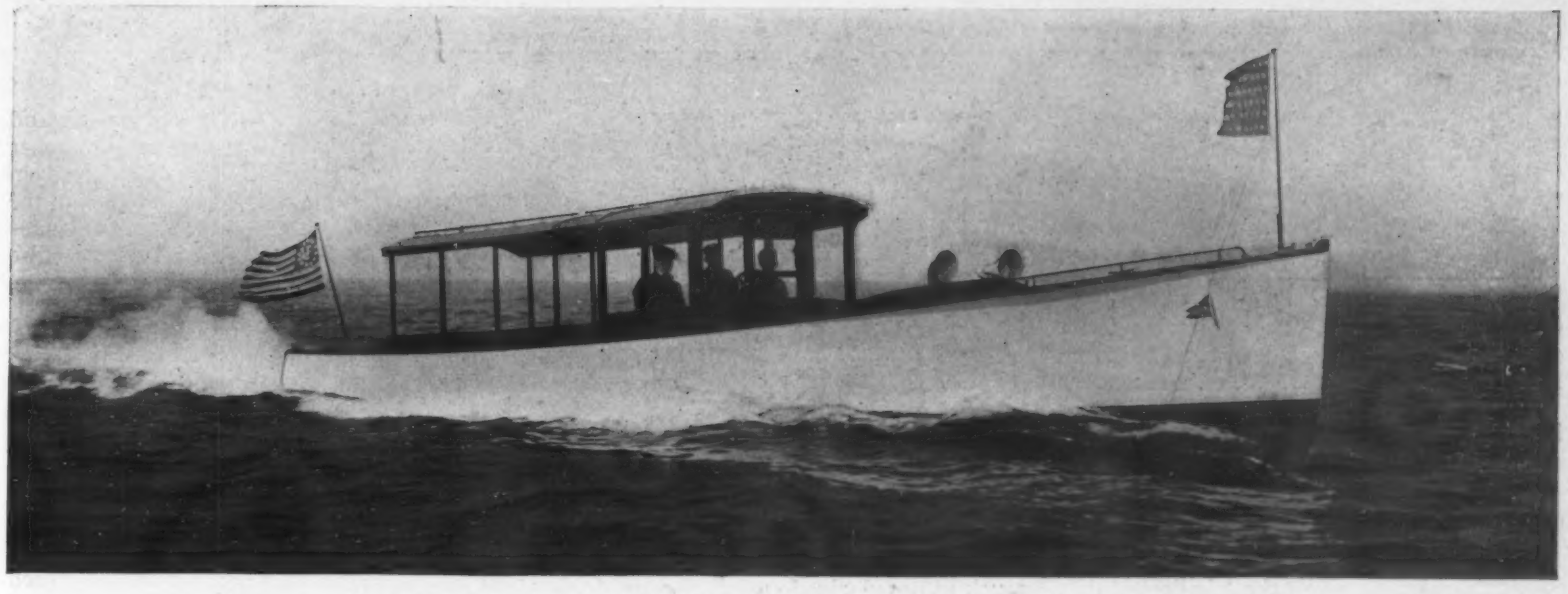
*To Top Off With*

Don't forget that there are many occasions when a lot of nutriment must be had with a very simple menu. One of the most nourishing foods, which can be used as a dessert or between meals to stay the pangs of hunger, is chocolate. A liberal supply of sweet chocolate and cakes should always be carried. It will prove one of the most popular of the "stores" in the pantry locker. Milk chocolate is especially good and tasty.

A certain amount of sweets is always necessary, and for dessert there is a great variety of articles that do not require cooking. Fresh fruit can be carried, but on a long cruise it may not keep.

Bartlett pears, canned in glass, make a very cooling and tasty fruit. Preserved cherries also make a good dessert, while, of course, peaches and most of the other fruits which are better known are usually carried in stock. Evaporated apples may be carried, so that made desserts which require fruit may be put together. These apples stewed soft in plenty of water make an excellent sauce. Certain kinds of puddings may also be had in tins and are very welcome at the end of your dinner. Don't overlook the value of dessert for at least one meal a day. Raisins, prunes, figs and dates are also a good thing to carry. They are very "easy to take," supply the necessary sweetness, have lots of nourishment, and are good for the system where there is apt to be lack of physical exercise ashore.

Get your larder stocked up well before you start with all the staples and only trust to the markets of the different ports you visit for the necessary fresh stuff—otherwise you can't be sure of getting the brand you want, and may often have to put up with inferior articles, sometimes at an increased cost, when you might just as well have had the best by ordering from those that carry a full line of all the brands.



SPEEJACKS, THE NEW HIGH-SPEED RUNABOUT OF COMMODORE A. Y. GOWEN

### Speejacks a Fast Boat

The new high-speed runabout of Commodore A. Y. Gowen, of Cleveland Y. C., which was exhibited at the New York Motor Boat Show by her designers and builders, the Gas Engine & Power Company and Charles L. Seabury Company, Consolidated, recently ran her trials on the Hudson River, during which she attained a speed of 25 miles an hour. While the boat is essentially a high-speed runabout, she has a standing roof with glass enclosure forward, while the cockpit is arranged with a number of cruising conveniences, such as toilet, sink, oil stove, wash basin, dining table aft and plenty of locker room. There are side curtains which make the cockpit weather proof, and the after seat can be used as a berth when desired. These features are something of a new departure in a runabout. The boat is 50 feet long, 8 feet beam, and has a draft of 3 feet 3 inches. She is powered with a 140-horsepower, six-cylinder Speedway motor installed under a hinged hatch in the forward deck.

### Cup Defenders to Race

Though there will be no race for the America's Cup this year, two of the sloops built for the defense of the cup, Resolute and Vanitie, will be put in commission and raced throughout the season. The Resolute will, as last year, be sailed by Charles Francis Adams, 2d, while the Vanitie, which it is said has been loaned by her owner, Mr. A. S. Cochran, to Messrs. W. Butler Duncan and Cornelius Vanderbilt, will be sailed principally by Mr. Duncan. Chris Christensen, who had charge of Resolute's crew last year, will be on the Vanitie in charge of the crew. Both boats are being put in first-class shape.

American yachtsmen will be particularly pleased to see these two boats come together again. Many have felt that Vanitie did not show her true worth last year, due to the changes in skipper and crew, and some minor dissensions among the men, and have been anxious to see her in the hands of a first-class amateur. There is a saying that nothing succeeds like success, and this is particularly true of yacht racing. Starting with a fresh crowd this year, without the discouragement of a long string of defeats, the skipper and crew of the Vanitie ought to get more out of her than was done last year. Everyone wishes her the best of luck and whatever the outcome of the season's racing between these two boats it is sure to prove a most interesting season.

The first race is scheduled for July 3, and they will race until the end of the New York Yacht cruise, the latter part of August.

### Opening of Columbia Y. C.

The regatta committee of the Columbia Yacht Club for the season of 1915 is as follows: Henry Carr Pearson, chairman, Daniel B. Brinsmade, M. D., Thomas Farmer, Jr., Charles H. Moore, Charles F. Muller. Measurer, Prof. O. C. Gunther, Stevens Institute.

The program of races for the season as adopted at a recent meeting of the committee is as follows:

*June* 5.—Opening regatta. Open to boats of any recognized club.

Class I. Open boats.
Class II. Displacement races.
Class III. Hydroplanes.
Class IV. Cruisers.
Class V. Express cruisers.

*July* 17.—Long distance cruiser race to Stratford Shoal Light and return. Distance about 113 nautical miles. A sanctioned race under A. P. B. A. Open to cruisers enrolled in any recognized club.

### United States Power Squadron Plans

The official review and inspection of the Hudson River Power Squadron by Chief Commander Roger Upton, of Boston, is scheduled to take place on May 30 and 31 off Croton Point, on the Hudson. At least 100 members of the squadron are expected to have their power boats there at the time.

The Hudson River Squadron will rendezvous in Manhasset Bay on July 31 and then cruise to the eastward, making New Haven, New London and Newport the ports of call, and all other squadrons are invited to join this run.

All who fly the U. S. P. S. ensign must attend at least three drills each year or forfeit their certificates unless they be excused from attendance by the local commander. Efficiency in squadron maneuvers includes attendance (numerically), condition of craft and equipment and skill in answering signals. Chief Commander Upton has offered prizes for the squadrons making the most creditable showings.

### New Coast Survey Vessel

The well-known twin screw steam yacht Isis, recently purchased by the Government for the Coast and Geodetic Survey, will replace the fifty-year-old Endeavor, condemned as unsafe and unfit for surveying duty. The Isis is considered one of the finest and most complete vessels of her type ever built in this country. She is of extra strong construction and in remarkably fine condition, according to the reports of the inspectors of both the American Bureau of Shipping and the United States Steamboat Inspection Service. The nautical surveying officers of the Survey report that she can be readily adapted to the needs of their service at a moderate cost. Her overall length is 200 feet and she can steam 12 knots per hour.

### Twenty-fifth Anniversary of Stuyvesant Y. C.

The Stuyvesant Yacht Club celebrated recently its twenty-fifth anniversary with a banquet. About 150 members and guests attended the affair, which proved a great success. Among those present were Park Commissioner Thomas W. Whittle, Assemblyman Philip J. Schmidt, president of the Waterway League of New York and Long Island, Mr. William S. Boyd, Mr. Ernest W. Bradbury, Mr. Joe Krause, Mr. Peter Barry and Commodore Caesar of the Metropolitan.

### Long Island Sound Motor Boat Association

The newly formed Long Island Sound Motor Boat Association, a local section of the American Power Boat Association, which has been formed this spring, has plans under way that insure a very active season for Long Island Sound. The following clubs are already members of the Association: The New Rochelle Y. C., Huguenot Y. C., the Knickerbocker Y. C., the Harlem Y. C., the Stamford Y. C., Port Washington Y. C., the Motor Boat Club of America and the New York Athletic Club. Every club on Long Island Sound between Hell Gate and New London that is a member of the A. P. B. A. is eligible for membership. No additional dues for membership in the Association are exacted, the A. P. B. A. remitting to the local section one-half of the dues already paid by the local club for their A. P. B. A. membership.

### Marblehead and Gold Cup Races

The Association already has under discussion the revival of the Marblehead Race, which will probably be run from Marblehead to Port Washington, so as to finish on the dates selected for the Gold Challenge Cup Races, on Manhasset Bay, July 29 to 31. It is possible that the new organization will also have the handling of the Gold Challenge Cup event, which is expected to bring together the biggest fleet of starters that this race has ever seen. Steps are also being taken to have the National Carnival held under the auspices of the Association. The deeds of gift governing these perpetual challenge trophies have been changed so as to make them fit more adequately the present type of boats in the various classes.

### Many Yachts Change Hands

The following sales and charters of yachts and motor boats have been reported by Messrs. Gielow & Orr, of New York City:

The 45-foot bridge deck cruiser Alura, for Lila M. Bullock to Dr. C. D. Owen, Grand Rapids, Mich.; the 67-foot auxiliary schooner yacht Wendameen, Mr. Chester W. Bliss, to Robert A. Uihlein, Milwaukee, Wis.; the 35-foot express cruiser I Curez, Mr. C. Fox to Mr. R. D. Benson; the auxiliary schooner Margaret, Commodore Philip H. Johnston' sold to Mr. J. J. Corkill

(*Continued on page* 318)

# EDITORIAL

**Cruisette Withdraws from the Bermuda Race**

The following letter has been received from Mr. W. P. Frost, who built the ocean racer Cero especially for the Bermuda Race of this year:

"STAMFORD, CONN., May 10, 1915.

"To the EDITOR OF YACHTING:

"During the Motor Boat Show there was so much publicity given the 'challenge' that Captain T. F. Day made to race the Cruisette against all comers to Bermuda that I commissioned Mr. Luders to design a boat to take up that challenge. Now that the boat is ready for launching I am informed that the builders of the Cruisette have withdrawn her from the race. This unsportsmanlike action has left me with an expensive ocean racer on my hands and no one to race against.

"I am writing in the hope that you will be good enough, in the interest of ocean racing, to make some comment in YACHTING about this eleventh-hour withdrawal.

"Captain Day has said so much about ocean racing in his publication, and about the people who enter their boats and never start, that I am surprised that he has allowed the 'bluff' to be called. It looks as if the Cruisette and her captain needed the free advertising that they received, and that no other entrant was expected.

"No reason has been given for the race being called off, and I am disgusted that after so much talk about the challenge, and after my boat is ready for the water, that they back down. Such actions, more than anything else, tend to kill ocean racing.

"I am, Yours very truly,

"(Sgd.) W. P. FROST."

The facts of the case are set forth in this letter. When Mr. T. F. Day announced at the New York Show that he would take the Cruisette to Bermuda he stated that he would like to race down in order to revive, if possible, this ocean classic that has done so much to popularize long-distance racing and for the development of the power cruiser. When Mr. Frost took up the challenge a committee was appointed, conditions for the race drawn up, the date fixed to suit the convenience of the Cruisette's crew and, on the assurance that she would positively start, Mr. Frost went ahead to build. No reason has been given for the withdrawal of the Cruisette. The last flagrant example of this kind was in the Bermuda Race of 1912, when a great many entries were received and the promoters spent a good deal of money making the necessary arrangements. When the day of the race arrived only two boats came to the line to start and the owners that backed out were scored unmercifully by the press and by everyone interested in the event.

There is no charge of bad faith on the part of the skipper of the Cruisette. He is not the owner of the boat, and everyone knows his achievements too well to believe that the boat was withdrawn on his representations. But we do believe that this is the sort of thing that has killed ocean racing, and not the fact that "landlubbers and others" have drawn up the conditions and laid out the courses, as has been imputed. It is never hard to get a crew to go offshore; the trouble is to get an owner with the stomach to lend his boat. Mr. Frost is still anxious to race to Bermuda. Is there any power-boat owner that has enough sporting blood or interest in preserving the race to make the trip this year? If so, the starting date will be postponed until the middle of June, if necessary, to accommodate him.

**Violating International Law**

Questions such as that of the sinking of the Lusitania and those involving international policies and laws are outside of the province of a magazine devoted to purely yachting matters. Yet the wanton sinking of the giant Cunarder is fraught with such far-reaching consequences, that bid fair to affect the sport of yachting in this country, that we may be pardoned for touching on the matter in these columns. The conduct of the war on the sea, where one of the nations involved has so flagrantly disregarded international law and the rules laid down for civilized warfare—chief of which is that war is made only on the armed forces of the enemy—that it is time for all the neutral nations of the world to rise in moral indignation and protest. Germany's actions may be likened to the man who enters a race and does not sail it in accordance with the prescribed rules of the contest. It isn't long before such a man is shunned and ostracised by true sportsmen.

It is sincerely hoped that the present crisis will be safely passed. If it is not it will have a marked effect on the forthcoming yachting season. Both in England and in Canada, the two principal yachting countries of the Allies, the members of the yacht clubs have responded nobly to the call and have done their share towards the preservation of their country. We do not believe that there will be any call for American yachtsmen to make the same sacrifice. But if there is, we feel sure that the spirit that makes a man follow the sea for his pleasure is the kind of spirit that will make him an asset to his country, and that the special knowledge which he has acquired through this sport will make him peculiarly useful in time of a great national necessity.

## The War's Toll of the Royal Canadian Yacht Club

THE present European war has taken its toll of Canadian yachtsmen and the list of casualties of the First Canadian Contingent that comes from France and Belgium contains the names of many who are well known in the United States also. One hundred and twenty members of the Royal Canadian Yacht Club alone were with the First Canadian Contingent and twenty-one have already been reported as killed, wounded or missing. Among the killed are W. L. Lockhart Gordon, Major G. M. Higinbotham (died), W. D. P. Jarvis, A. D. Kirkpatrick, Gerald Muntz, F. R. Medland, G. C. Ryerson and Trumbull Warren. The missing include D. Allan, G. M. Alexander, Hugh Barwick, A. E. Kirkpatrick, Gavin Langmuir, L. S. Morrison and F. J. Smith. Major Higinbotham, as has been said before, was a member of the Patricia's crew in the races off Chicago in 1912 and was a judge during the last Manhasset Bay Cup Race. Lieut W. D. P. Jarvis is "Bill" Jarvis, son of Æmelius, Canada's famous skipper. As skipper of the Class "R" boat Swamba, "Bill" Jarvis twice won the George Cup, sailing against some of the best skippers on Lake Ontario. He later sailed the famous Seneca after she has been purchased from Rochester, and he was still her owner at the time of his death. Leslie Gordon, who was mainsheet man on the Swamba during one of the George Cup races, has also been killed at the front. The stuff that makes daring sailors also makes for daring soldiers.

IT'S SUMMER TIME AGAIN AT THE NEW ROCHELLE YACHT CLUB

The club went into commission on May 22 with a beefsteak for the opening night, to which the ladies were invited. The dinner was followed by an entertainment and dancing. The ensign, club burgee and Commodore's pennant were mast-headed in the afternoon, the harbor being well filled with boats.

From every indication there will be as big a fleet of the New Rochelle Yacht Club this year as there has been in the past two years, and desirable moorings will be at a premium. Some of the older boats that have made up the club fleet in the past have been sold, but there are a number of new ones to take their places. Among those that will be missed may be mentioned J. P. Donovan's yawl Scud, which has been sold to Morgan Colt, Jr.; the power-boat Alura, which Mrs. Bullock has sold and which will be taken to the Great Lakes by her new owner, who hails from Grand Rapids, Mich.; while B. R. Stoddard's Amada has been chartered and will not be used by "Rush" this season, as the farm up the Hudson will probably keep him pretty well occupied in trying to get a big enough crop to show a profit. To offset these losses, R. W. J. Kingan has bought the 60-foot overall schooner Beloved Vagabond, to take the place of his Carmita, while the racing sloop Rohilla will be back in the club, her owner, H. J. Diem, having been elected to membership at a recent meeting. "Willie" King has sold his Eidas and is on a still hunt for another cruiser.

The entertainment committee announces that there will be dancing every Wednesday night during the summer, but that the Saturday night dances will be cut out, as most of the members are off cruising over the week-end.

Bathing facilities on the Island are to be enlarged, and it is planned to build a number of bathing houses in the old clubhouse for the convenience of members. These will be available for the ladies at certain hours of the day. As usual, "Si" Seymour will be the architect, and the scheme allows great scope for the display of his artistic talents.

H. M. Betts, commodore of the launch fleet, has had troubles of his own, but assures everyone of first-class service from the opening day, all of the boats and engines being in good shape, while two of the power plants are new.

The New York 30-footer Okee is still flying the broad pennant of Commodore Mahlstedt. Everybody in the club expects her to again clean up in her class this summer.

There is some sentiment in the club looking towards the formation of a power squadron. It takes ten owners to form a squadron in a club. The power-squadron movement is growing, and Commodore Givan and a number of the other active power-boat owners believe that the formation of a squadron would do a great deal for the power-boat men in the club. It is probable that a meeting of the power-boat owners will be called shortly to discuss the matter.

The Lloyd's Harbor Club will dine at the New Rochelle Yacht Club on the night of the 28th, and at midnight will start on their annual night race for Lloyd's Harbor. It takes considerable strength of mind to break away from the hospitalities of the clubhouse at that hour to race to Lloyd's, but the Lammihounders never flinch at such a doleful prospect as that.

The trap-shooting team has disbanded for the season, after winning about all there was to win in the way of local championships.

The sloop Io, which raked every port on the Sound when "Charley" Marsland was her skipper, will soon leave for foreign parts. Ex-Commodore H. H. Moulton, who now is the proud owner of her, will sail her to Providence, R. I. (assisted by her ex-skipper and Club's legal adviser, W. P. Jeffreys), where she will be most of the summer.

The regatta committee announces the following racing schedule:

June 12.—Annual regatta.
July 10.—Stratford Shoal race for sail boats.
Aug. 14.—Special motor boat race.
Aug. 28.—Summer regatta.
Sept. 4.—Squadron run to Lloyd's Harbor.
Sept. 8.—Special motor boat race.

The chairman of the regatta committee, Mr. George Malloy, has been hard at work on a new racing circular, which will be a great improvement over any heretofore used on the Sound. The various classes will be grouped in divisions, each division being designated by a number, which is expected to simplify the starts for the racing skipper and will enable him to tell at a glance when his start comes in relation to the other classes.

Commodore Mahlstedt has appointed G. P. Granbery, of the Anita, fleet captain; Rev. W. E. Stevens, fleet chaplain, and Dr. J. S. Fuchsius, fleet surgeon.

# Chicago Yacht Club Getting Busy

On April 22 a luncheon was given at New York by Commodore J. O. Heyworth to a number of representative Western and Eastern yachtsmen, at which the matter of an East-West trophy, to encourage competition between the Great Lakes and the Atlantic seaboard, was brought up. The Chicago Yacht Club definitely offered such a trophy and suggested that it should not be tied up to any special class but could be raced for in any one of several designated classes as sentiment might demand. For instance, while the "P" class is very popular now, it might not be a few years hence, and the idea was to have the conditions so elastic as to allow the trophy to be raced for by whatever class was popular on the Lakes or coast at the time of the challenge. Commodores Lydon and Sheldon Clark were present, as well as W. Butler Duncan, Commodore W. H. Childs, Addison Hanan, and a number of other well-known Eastern yachtsmen.

While no formal challenge was received in the "P" class this year, Mr. Hanan and Commodore Childs intimated that they would send out the Josephine, or possibly a new boat to be built, to race the Valiant, provided satisfactory transportation arrangements could be made, and that they could get a skipper and crew for their boat. Mr. Hanan felt that he must decline to sail the boat himself on account of his health. This looks as if there would surely be a race off Chicago this summer. Dates were not definitely fixed, but it was suggested that early in September would be the most suitable time.

There is also a possibility of a challenge for the Manhasset Bay Cup at the same time. Some of the Massachusetts Bay yachtsmen still are anxious for this trophy, and it is hoped that a challenge will be received from them before the season opens.

The Mackinac race has been definitely fixed for July 17, the start being at 3 P. M. It is expected that Dr. Baum will have his schooner Amorita in commission. If so, she will probably have as a competitor a new schooner owned in the club, the Margaret, recently bought on the Atlantic Coast by J. J. Corkill, and now on her way to Chicago. The Margaret was designed by Arthur Binney and built by Lawley, is 93-feet overall length, 9 feet 6 inches draft, and has a four-cylinder gasolene engine as auxiliary power.

"Tommy" Atkins began the season on April 22, when he started with the big schooner Fioreyn from Chicago on her trip to San Francisco, where her owner, Mr. Thomas Thorkildson, of the Chicago Yacht Club, is a resident. April 22 is pretty early for sailing for pleasure on Lake Michigan, but the big schooner made the run to Mackinac in 44 hours, a dense fog prevailing for practically the entire trip. She arrived at Detroit at 1.30 P. M. on April 27, four days and twenty hours from Chicago. The fleet captain of the Chicago Yacht Club had to leave her at this point. Since then she has passed Montreal and is well on her way to Frisco. She will go down the Atlantic Coast and through the Panama Canal.

# Harlem Yacht Club News

The club went into commission Saturday, May 15. Clubhouse and grounds were gay with bunting, and pennants whipped briskly in the fresh breeze. The fleet afloat was dressed in holiday attire. As the gun gave the signal for the raising of the club burgee, "cheer ship" was the order. It was an enthusiastic opening day. In the evening followed the annual opening beefsteak party. This affair was more than well attended. The beefsteak parties of the Harlem Yacht Club are too well known to need description. Sufficient to say that this was a record breaker. A program of novel entertainment, good fellowship and all the essentials of a real "party" made a big night. The best words in which to describe the affair are to say that it began early and ended at———— (deleted by the censor).

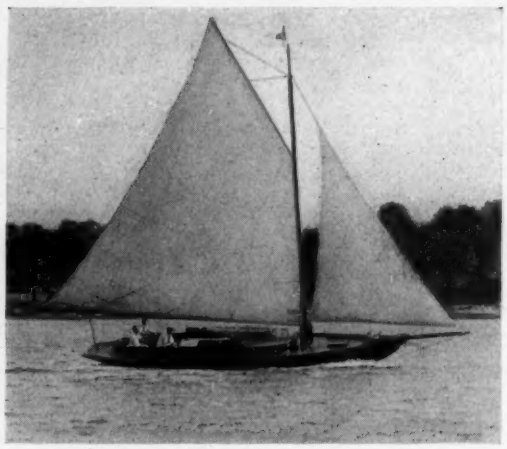
Extensive improvements are under way. A corps of earnest-looking workmen have made a determined move on the clubhouse, and under the skilled direction of the house committee are transforming the interior and exterior of the building. The grounds and roadway are also receiving attention. Without doubt, as soon as alterations are completed (business going on as usual inside), the change will make the clubhouse more attractive than ever.

Now that the boats have taken to the water, the tennis courts will be put in shape immediately and one can be assured of a little real tennis for the summer. This is a popular game at the club, and efforts are being made to have the courts as perfect as possible.

There is some talk of an automobile shed, but whether this will ever come out of the region of rumor is largely up to the plutocrats who maintain cars in these war days. The spar shed formerly has been used for this, but the number of cars that weekend at the club has grown to such proportions that it is impossible to house more than a small part of the cars in the shed. However, if the car owners get together and submit some practical suggestions there is no reason but that something may be done.

Regarding launch service, that will have to lay over to another season. As a matter of fact, most members possess motor "dinks," so at present there is no real necessity of installing an expensive launch service, desirable as it is.

Those members who wish to compete in the Bay Races this summer are requested to send in their entries to Chairman Tucker of the regatta committee. In any event, get in touch with him, as there are some details to be decided upon in connection with the races that he would like to talk over with the racing captains before coming to a



SABRINA, FLAGSHIP OF VICE-COMMODORE F. E. FRIEDRICHS, HARLEM YACHT CLUB

decision. There will be four Bay races and the Jarchow race. They will probably be sailed on Sundays. The boats will be raced in two classes instead of one, as heretofore. The races will, with the exception of the Jarchow Cup race, be a series, prizes to be awarded the winner of the series on a point system similar to that used by the Larchmont Yacht Club. To make the series a success it is necessary to get as many entries as possible for each of the races. Formerly all of the smaller boats have given more than satisfactory support to the races, but the bigger yacht owners have shown a decided lack of interest. The excuse has been chiefly that there is not enough water in the bay for the deep boats, but that is not a fact. The Bay races are set for high tide, and at full water there is depth enough for any of the boats in the fleet. Another excuse has been that the short course twice around makes too much work in the handling of the boats. That excuse reflects upon the sporting blood of the one who offers it. Frequent setting of sails, changing of courses and rounding of marks adds zest to the game and gives an added incentive to an alert crew and an active-minded skipper.

With a special class for the big fellows it is up to them to fill it. Those who are content to swing at their moorings will not be doing their duty by the club. It is hoped that the first class will be as popular as the second. With two good racing classes, consistently fighting it out all summer, some good sport can be anticipated.

Talking about racing, how about a special race between the Buzzard's Bay Zingara and the Wahtawah? Neither boat has shown supremacy over the other. Captain Fred Newton and Captain Frank Mulfeld are both experienced skippers, with good crews. A race between the sister ships would be something worth while.

The annual open regatta of the Harlem Yacht Club will be held Decoration Day. It has also been decided to hold a Stratford Shoal race for sail and power boats later on in the season.

To enter the Jarchow race in September, a condition is imposed that all entrants shall have entered and finished in the open ragatta of the club on Decoration Day.

The first boat to raise sail in the bay was John Lalor's "Q" class Dixie. The Dixie, from her performance, seems to be a "slippery" boat.

"Ed" Lang is going after the championship of the New York "thirty" class. The Banzai, with a new suit of sails cut in "Bill" Griffin's best style, ought to be up in the front of the class this season.

The Peg will be moored in Hempstead Harbor, off Sea Cliff, this season, Henry T. Hornidge having taken a summer home in that "burg."

Mr. Bill Rice, the oldest inhab. of C. Is., was there on opening day. He stumped his cane, he did. "Crumbs," said he, "I feel as good as ever I did in the old sandbagger days."

George Jarchow is expected to bring a 65-foot motor boat to the club. Negotiations have been in the air for some time. They are still there.

Several new members were added to the roster at the last meeting. The membership is now near the limit.

Some applications for junior memberships have been received. The candidates will be proposed at the next meeting.

"Rudy" and "Joe" helped largely in the vaudeville entertainment at the club "beefsteak." Some hand they received.

"Jack" Delaney is a speed demon on a motor cycle. Look for him at the motordrome at Brighton Beach this summer (adv.).

"Bob" Haydock has been a busy scraper (not scrapper—ed.) for the past two months. "Next year I'll paint the blamed boat," he said.

Will somebody buy new records for the phonograph? Some of these are as old as the horse Carew used to ride in the Park.

George Acker's bug-boat, the Kissing Bug, has been launched.

# Yachting News, Portland Yacht Club

The season is beginning to shape up, the clubhouse has undergone its annual repairing, a new coat of paint adorns it, and by the time of its going into commission, May 30, it will fairly shine. Many of the boats lay at their moorings, and each day sees a new addition to the already good-sized fleet. Much can be promised from the motor-boat men this season; enthusiasm runs high, and at the meetings held during the month plans were perfected for drills and runs which will occupy pretty much all summer.

Several invitations from resorts asking that the fleet visit them sometime during the summer months have been received, and the secretary has been instructed to accept some of them, one of the most promising places being Sebasco. All possible land accommodations may be had, and to cap the climax an offer to fish a private preserve for red-spots and salmon has been extended. Many of the motor-boat owners are disciples of Ike Walton, and will no doubt stow away their fishing tackle on this particular trip.

Much to the regret of the members, Commander Day has sold his Davy Jones II, thus necessitating his resignation as Rear-Commodore of the Portland Yacht Club and Commander of the Power Squadron. Mr. Day's time is so occupied in writing serials and a new novel, that during the next few months his whole attention will have to be given his work. He says, however, he's coming back to the game strong in 1916.

Mr. Walter T. Camp, for several years paymaster in the United States navy, has been elected to Mr. Day's position, and as he is an enthusiastic motor-boat man he will be an able successor. Mr. Camp has already organized his squadron and has made it plain to the members that he, with their assistance, will do things. He simply asks for co-operation, and as he will get the hearty support of every member there is no question but the summer months will develop one of the best local squadrons belonging to the United States Power Squadrons.

The City of Rockland, Me., has established a landing, and through the courtesy of Mr. Southard, chairman of the landing committee, a cordial invitation has been received by the club to use it. A welcome is extended to all members of the club.

The club's membership is now limited to 450 active members. It's but a question of a few months before there will be a waiting list, as there are now some over four hundred members.

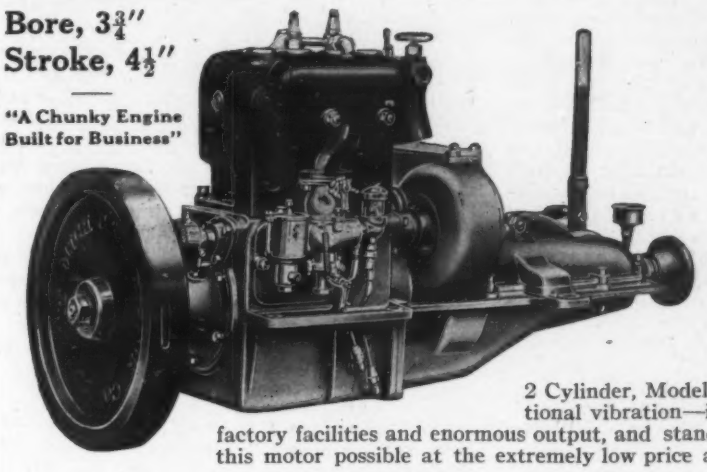
The following telegram was received from Admiral Peary, who attended our annual banquet, "Congratulations to such a live organization and to the best Commodore." The Admiral made the trip from Washington purposely to attend our banquet, and on account of pressing business was obliged to return the following morning, taking a train at 5 A. M. His action shows plainly the loyalty of our members.

There is a fair prospect of an ocean race, terminating at Portland. The start of such a race will undoubtedly be from Philadelphia or New York. At a recent meeting of the club it voted to do everything in its power to care for this end, the finish of the race.

The annual cruise will take place about the middle of July, or upon the arrival of the Boston Yacht Club, who will this year cruise to the eastward. The Boston Yacht Club has invited the Portland Yacht Club to join with them, and the invitation has been accepted with pleasure. These joint runs in the past have occasioned not only royal good times but have cemented the already solid friendship existing between the two organizations. The itinerary of the cruise will be announced at a later date, most likely it will be over the waters sailed two years ago—Mere Point, Winnegance Bay, Boothbay Harbor, Peaks Island.

Bore, 3¾"
Stroke, 4½"

"A Chunky Engine Built for Business"



# 8-10 H. P. 4-Cycle Gray

**2 Cylinder—Model "D"**

**Develops 8 H. P. at 700 R. P. M.—10 H. P. at 950 R. P. M.**

***CLEAN — ACCESSIBLE — SILENT***

Simple and Sturdy in Every Line and Feature. An engine for **Real Hard Service**—such as is required in work boats, fishing boats, small cruisers, and launches from 18 ft. and upwards in length. On account of its compact build, it is ideal for installation as auxiliary power in the larger sailing crafts. Will stand up under most severe conditions.

By reason of the extreme care exercised in giving mechanical balance, the 2 Cylinder, Model "D" is a remarkable smooth running engine, almost totally free from all objectional vibration—in fact, it runs much smoother than most 4 Cylinder, 4-Cycle engines. Unusual factory facilities and enormous output, and standardization alone, make this motor possible at the extremely low price at which it is marketed. **Price, depending on equipment, $156 and up.**

## Gray 2—Cycles Model "U"

Gray 2 Cycles appeal strongly to all users—the inexperienced—the amateurs—the yachtsmen—the engine experts—the mechanical engineers—and the engine dealers. Gray 2 Cycles are the simplest, high-grade, efficient marine engines made.

**SOME NEW MODEL "U" FEATURES**

**Complete Unit Power Plant.**
**Built-in Reverse Gear Enclosed.**
**Bronze Plunger Pumps.**
**Cylinder Controls.**
**Magneto Equipment.**
**Accessibility—Hand Hole Plates on both sides of crank case.**
**Non-backfiring Device.**
**Oversize Connecting Rod Bearings.**

***Prompt shipment to all parts of the world where shipping is possible***

**3 H. P.** Single Cylinder. Bore, 3½ inch; Stroke, 4¼ in. Complete Fresh Water Outfit, **$55**
**Complete Salt Water Outfit, $59.**

**5½ H. P.** Single Cylinder. Bore, 4¼ inch; Stroke, 4¼ in. Complete Fresh Water Outfit, **$86**
**Complete Salt Water Outfit, $92.50.**

**6 H. P.** Double Cylinder. Bore, 3½ inch; Stroke, 3½ in. Complete Fresh Water Outfit, **$114**
**Complete Salt Water Outfit, $120.**

**11 H. P.** Double Cylinder. Bore, 4¼ inch; Stroke, 4¼ in. Complete Fresh Water Outfit, **$148**
**Complete Salt Water Outfit, $160.**

***WRITE FOR CATALOG***

## GRAY MOTOR CO., 6308 Gray Motor Building, DETROIT, MICH.

**1909 - - 1915**

## Bottger Bros. & Co.

**SAIL MAKERS**

Racing and Cruising Sails.
Yacht Awnings, Covers, etc.
Painted Sail Covers.

***Sailed Cleaned and Mildew Proofed***

**Marine Basin Ulmer Park**
**Formerly at City Island**
**Brooklyn, N. Y**
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The New

## Waterman PORTO

**Complete with**
**SINTZ REVERSING PROPELLER**
**Giving Multiple Speed Control**

not only makes any boat a motorboat—but a *motorboat of unrestricted speeds*, both forward and reverse. From the swiftness of 8 to 10 miles an hour, you can slow down to an imperceptible drift and into reverse at any rate you desire, without discomforting jerks and shudders.

The original outboard motor, numbering 30,000 satisfied users in its tenth year of unqualified success. In addition to its two wonderful refinements, the 1915 model carries the essentials which have made the Waterman Porto a reliable standby for more than 9 years.

Develops 3 h. p. Weighs 65 lbs. Fits any shape stern. Has automobile carburetor, not "mixing valve"; removable bearings; solid bronze skeg protecting 10½x16 inch propeller. Steers by rudder from any part of the boat. Water cooled exhaust manifold; noiseless under-water exhaust; spun copper water jacket. Ignition by high grade, high tension magneto. And guaranteed for life.

*These are not features, but essentials. As such, demand them in your rowboat motor, or you will not be getting full value for your money.*

**1915 Model With Reversing Propeller and Multiple Speed Control**

Write today for free Marine Engine Book containing full information on our full lines of engines.

**WATERMAN MOTOR CO., 203 Mt. Elliott Ave., Detroit, Mich.**

# Of Interest to the Skipper

### A Government Sterling Economy Test

Every owner of a marine engine is profoundly interested in the cost of operation. As fuel consumption is the chief controlling factor in the cost of operation, the manufacturer who can show that his engine burns less gasolene and requires less oil in proportion to the power developed has taken a big stride toward the goal marked success.

A general rule followed by most people is to allow one pint of gasolene per horsepower hour. As a matter of fact, most two-cycle engines and some four-cycle engines use considerably more than this. In view of these facts some economy tests of the Sterling engines, to be used in some of the new navy launches, recently conducted under the supervision of the United States Government at the Sterling plant, will be of interest.

The Sterling Company's report shows that two stock Model B, six-cylinder, 5½-inch by 6¾-inch engines were selected for the test. The conservative ratings of these motors are 50 H. P. at 600 R. P. M., 85 H. P. at 1,000 R P. M., and 100 H. P. at 1,200 R. P. M. Both engines were placed on the blocks in the new testing room of the Sterling Company and given a continuous run of four hours under full load. Engine No. 1 was started at 903 R. P. M. and run for four hours, varying only between 903 and 896 R. P. M. With a brake arm length of 31½ inches and a weight of 183 and a tare of zero, the horsepower developed was 82. For the four-hour run the gasolene consumption was 34.88 gallons or 8.72 gallons per hour. Sixty-eight Baume gasolene was used, the barometer registered 29.15, the temperature 55 and humidity was 48. Twelve pints of lubricating oil were used. An identical test of engine No. 2, with same brake conditions, was made two days later, the revolutions remaining practically constant at 900, the horsepower developed also being 82. This engine burned 35.75 gallons in the four-hour run or 8.94 gallons per hour. Oil used was 9 pints. Sixty-eight gasolene was again used, the barometer was 28.84, the temperature 56 and the humidity 96. Applying formula of a pint per horsepower hour one would expect a consumption of 10.25 gallons per hour for the 82 horsepower. Thus a consumption of 8.72 gallons per hour for No. 1 and 8.92 for No. 2 is an excellent economy showing.

One of the new Admiral's barges of the United States Navy. She is equipped with 150-horsepower Sterling engine.

### Koban Two-Cylinder Rowboat Motor

A built-in magneto is one of the new features of the 1915 two-cylinder Koban rowboat motor. Electrical experts have pronounced it one of the finest magnetos of this type yet devised. While many standard types were available, it required special construction to build a magneto that would answer the requirements of a two-cylinder motor and remove the objection of having a magneto attached to, instead of an integral part of, the motor. One of the special features of the Koban magneto is that it is reversible. It is not necessary to stop the engine or reverse the propelling mechanism to change the direction of the boat. A simple pressure of a button reverses the engine.

**See the Captain, the Owner and his Guest** comparing and setting their watches at 8 BELLS, *struck* on the Large BELL forward by the (Patented) STRIKING SHIP'S BELL CLOCK

**"CHELSEA" AUTOMATIC**

The small "CHELSEA" ship's Bell clock in the cabin operates the large bell forward. Clock and bell can be located to suit wishes of owner. By a special push button, the bell can be rung continuously; very useful in case of fog, etc. If so desired, as at night, the striking on large bell can be omitted. ANY of the many plain or elaborate models of the "Chelsea" Ship's Bell Clocks can be outfitted by us to operate our Automatic outfit. **Every Yacht, medium and large-sized Motor Boat, House Boat, Steamship, Yacht Club, Marine, Naval Architect and Shipping Office, Seashore and Country Estate, etc.,** should be equipped with one of these attractive and useful outfits. For country estates, etc., gives audible time over large area and permits system of calls from residence for Chauffeur, Gardener, Coachman, etc., **very useful.**

**On sale by Dealers in Nautical Instruments and High-Class Jewelers**

CHELSEA CLOCK CO., 16 State St., Boston, Mass., U. S. A.
*Makers of High-Grade Clocks*
REPUTATION THE HIGHEST AND WORLD WIDE
SHIP'S BELL, MARINE, HOUSE and AUTOCLOCKS

***Safety First***

The engine that the Life Savers use.

*Send for Catalogues*

**HOLMES MOTOR CO.**
*Incorporated*
**West Mystic, Conn.**
**BOSTON OFFICE: 50 State Street**

**Steering Gears**
*and MARINE FITTINGS for*
**Power and Sail Yachts**

Edson Manufacturing Company
Established 1859
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**DRAW ON US!**
**for your**
**MARINE SUPPLIES**
**and**
**MOTOR BOAT ACCESSORIES**

Our **Central Location, Complete Stocks** and **Thorough Organization** enable us to reach promptly more boating centers than any other American Supply House.

Our 500 page **Marine Catalog, No. 102,** and **1915 Net Price List,** are ready for distribution.

If you haven't received your copy of the 102 Catalog—send 20 cents to cover postage—it will be refunded on your first order.

**GEO·B·CARPENTER & CO.**

**430-440 Wells St., Chicago**

"The Great Central Market"

390 Commonwealth Ave., near Massachusetts Ave. car lines and subway station. In the cool, quiet section, yet but six minutes from everything.

**The Distinctive Boston House**

*Some globe trotters have been good enough to say that the Puritan is one of the most homelike and comfortable hotels in the world.*

Single rooms from $2. Double room with bathroom, two persons $4 to $6. Combined sitting room, bedroom and bathroom for one, $4, for two, $5 and $6. Self-contained suite of sitting room, two double bedrooms and bathroom for two or more persons, $9 to $15.

Your inquiries gladly answered.

S. Y. COSTELLO, Manager

***The One Piece of Equipment You Cannot Afford to Overlook***

"THE MOST EFFICIENT FIRE EXTINGUISHER KNOWN"

In every quarter of the globe, the superiority of Pyrene protection is recognized by fire engineers. These extinguishers protect U. S. Government property from the Panama Canal to Alaska and are used by the Army and Navy Departments of various governments.

Promptly overcomes the fire perils so frequent in motor boats—the seemingly inaccessible flames from gasoline and grease. Ready and unfailing in efficiency when you and your companions cannot step ashore.

*Write for booklet—proving the economy, efficiency and supremacy of Pyrene—Send postal to-day.*

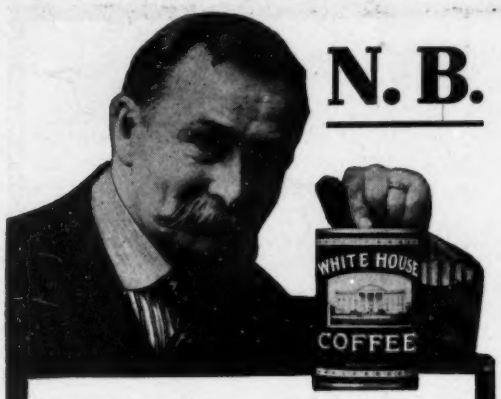
See Pyrene display in Palace of Machinery at Panama-Pacific Exposition.

**Approved by the U. S. Steamboat Inspection Service**
**Brass and Nickel-plated Pyrene Fire Extinguishers are included in the lists of approved Fire Appliances issued by the National Board of Fire Underwriters, and are Inspected, Tested and Approved by, and bear the label of, the Underwriters' Laboratories, Inc.**

**PYRENE MANUFACTURING CO., 52 VANDERBILT AVE., NEW YORK**

California Distributors: Gorham Fire Apparatus Co., San Francisco, Los Angeles
Distributors for Canada: May-Oatway Fire Alarms, Ltd., Winnipeg
Distributors for Great Britain and the Continent:
The Pyrene Co., 19-21 Great Queen Street, London, W. C.


**Consult YACHTING'S Information Department on any of your problems. Its service is absolutely free**




**N. B.**

**Perfection of berries used—the extreme care exercised in roasting—the delicious flavor developed—the sanitary precautions scrupulously preserved—the persistent uniformity of quality and the safe-from-harm packing in sealed all-tin cans, have made our splendid "White House" COFFEE a mighty desirable OUTING PROPOSITION**

DWINELL-WRIGHT COMPANY,
*Importers and Roasters,*
BOSTON — CHICAGO

**High Grade Heavy Weight Tanks**

For Gasolene, Water and Air of any shape or dimensions desired for any pressure. We make only work of merit.

**"Light Competition Work Not Wanted."**

Galvanizing of all kinds of marine work.

**L. O. KOVEN & BROTHER**
**50 Cliff Street : : : New York**

**UNMATCHED SPEED**
**Extra Power—No Vibration**

Speed that runs away from any other rowboat motor—power to propel large sized boats—no vibration to mar the pleasure of riding.

**2 CYLINDER**
**KOBAN**
**Rowboat Motor**

**3 H. P.**

The 2-cylinder Koban is the wise man's choice this year. Last season's records proved its mettle. Absolutely dependable under all conditions — easy to start — reverses while running by simply pressing the button.

**2 Cylinders — Racer Type**

The Koban Motor has 2 opposed cylinders —that's what removes the vibration— 3 H. P.—nearly double that of other motors —speed line propeller. The Koban is beyond question the most capable and best constructed rowboat motor on the market.

Write for 1915 Catalog. Send for illustrated catalog showing 1915 models and prices.

**Koban Mfg. Co.** 236 South Water St. **Milwaukee**


### Some Features of the Federal Outboard Motor

The catalog of the Federal two-cylinder outboard motor has just been received, and is an unusually interesting and instructive booklet. It describes fully the many novel features of this motor, among which may be mentioned its instantaneous and positive reverse, its hinged bracket, by which the engine and shaft can be swung inboard, lifting the propeller clear of the water when beaching the boat, its under water exhaust, and the Federal bracket for attaching the motor to a canoe without the necessity of building a well or cutting the hull in any way in order to let the shaft through. It also contains an excellent sectional cut of the motor, showing the mechanism and the various working parts. The Federal motor is rated at 3 horsepower, its speed being from 900 to 1,200 revolutions per minute. At the higher speed it is claimed that it gives in excess of the rated power. The booklet may be had by writing the Federal Motor Company, 620-629 F street, Washington, D. C.

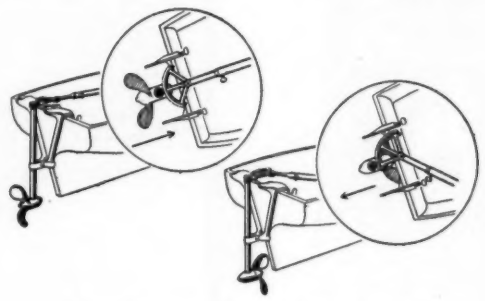
### Pyrene Beats the Movies

The Pyrene Manufacturing Company has a mechanical sign which is so realistic that it gets as much attention as a real fire. A few weeks ago when one of these signs was placed in the window by a New York City dealer, it attracted so much attention that it blocked the traffic during the rush hours.

The sign is a large mechanical one, with a big, broad arrow on top, swinging from side to side with a sweeping motion, while below there is portrayed on one side a disastrous fire, with the firemen hacking at the window, the smoke rolling out in clouds. On the other side the display shows a home protected by Pyrene extinguishers; the sunshine floods the room while the inmates of the house easily stifle the fire at the start with the convenient and efficient Pyrene fire extinguisher.

### A Portable Motor Reverse

Among the interesting developments in portable motors are the various types of reverse offered. One of these is the reverse, furnished with Joymotor, which works as shown in the accompanying diagram. By just turning the tiller to the right or left the propeller is turned in the opposite direction and a 45-degree movement of the tiller is enough to reverse the position of the



Reversing mechanism of the Joy motor

propeller and back the boat up. In this manner it is claimed the boat can be stopped almost instantly, which is considerable factor of safety. The motor embodying this reverse is manufactured by Joy Engineering Company, Tribune Building, Chicago.

### A New Marine Railway

With the completion of a new 50-ton electric railway, the Luders Marine Construction Company, of Stamford, Conn., has now one of the best equipped centrally located plants on Long Island Sound for the prompt hauling of yachts. The new railway was given a test by hauling the 96-footer Kemah. One of the attractive features is the arrangement by which boats can be pulled directly into the building sheds, so that the work may be done regardless of weather conditions.

This company now maintains at its Stamford yard a fully equipped supply depot and has an oil tank installed with the most modern filling apparatus to accommodate the largest boats. The storage facilities have been greatly increased in the last year and a half, there being now approximately two acres of storage space.

The company issues a small card, which will be sent out on application, showing a chart of Stamford harbor and the location of the shops, which will prove of considerable aid to strangers.

### Ferdinand Moves to Larger Quarters

Owing to the large increase in their business, L. W. Ferdinand & Co., makers of Jeffery's marine glue, have been compelled to get larger quarters and facilities, and are now moving to 152 Kneeland street, Boston, Mass., where their space will be double that which they are now occupying.

### Many Yachts Change Hands

(*Continued from page* 311)

Chicago, Ill.; the 30-foot runabout Patrice, Mr. J. B. O'Donohue, sold to Mr. C. T. Lamb; the 32-foot runabout Smoke, Mr. C. D. Allerton, sold to Mr. Miles L. Carter, Attleboro, Mass.; the 60-foot twin screw cruiser Montana, Mr. Seymour Dane, sold to Capt. H. Hansen; N. Y. Y. C. 30-footer Carlita, Mr. G. B. Kulenkampff, sold to Mr. Stephen H. Brown; the 93-foot twin screw motor yacht Dixie, Mr. R. Waverly Smith, sold to the Bureau of Navigation; 3 sonder boats, Badger, Chance and Otter, sold to the American Yacht Club; auxiliary schooner yacht Vagabond II, Mr. S. A. Fletcher, chartered to Mr. Frederick S. Minott; auxiliary yawl Circe, Dr. Austin F. Riggs, sold to Russell A. Alger, Detroit, Mich.; the 187-foot steam yacht Anahma, Mr. A. Heckscher, sold to Mr. Paul E. DeFere, N. Y. Y. C.; the 70-foot waterline Virginia, Mr Robert Barrie, sold to a Connecticut yachtsman; the Nirvana, N. Y. Y. C., 30-footer, Mr. John A. Ten Eyck, 3d, sold to Mr. E. H. Prentice, N. Y.; the N. Y. Y. C. one-design 50-footer Acushla, Mr. G. H. Heckscher, sold to Mr. Hermann Steinbrugge; the 60-foot motor boat Canvasback, Commodore Frederick G. Bourne, sold to Mr. Earl H. Potter, Jamestown, R. I.; the 30-foot raised deck curiser Dixie II, Mr. E. B. Covert, sold to Mr. M. Rabassa; the 62-foot twin screw motor yacht Howmornel, Mr. H. Busick, sold to a Boston yachtsman.

The office of Stanley M. Seaman, 220 Broadway, New York City, reports the following sales:

The 80-foot twin screw gasolene yacht Minerva, sold for Henry Schwarzwalder of this city to Mr. Alexander Smith Cochran, of the N. Y. Y. C.; the 85-foot auxiliary schooner yacht Gulma, for John H. Cromwell, to Dr. Robert H. Ellis, of Portland, Ore.; the 60-foot schooner yacht Beloved Vagabond, for Morgan Colt, to R. W. James Kingan, New Rochelle, N. Y.; the 63-foot gasolene yacht Ulana II, for the estate of Arthur E. Miller, to John A. Graham, Bradentown, Fla.; the 58-foot auxiliary schooner yacht Monk, for Powell Evans, of Philadelphia, to William J. Gunnell, of Buffalo, N. Y.; the 57-foot raised deck cruiser Flowin, for Charles A. Schieren, Jr., to Frank A. Egan, New York; the 54-foot raised deck cruiser Queen Mab, for Victor M. Tyler, of New Haven, Conn., to Irving E. Raymond, N. Y. Y. C.; the 50-foot raised deck cruiser Zar, for F. E. Baldwin, of this city, to Dr. F. T. Rogers, Providence, R. I.; the 53-foot auxiliary yawl Rosalind, for John J. Deery, to E. A. Brooks, Jr., of Oriente, Cuba; the auxiliary yawl Kirry, for Charles L. Carson, of New York, to E. L. Brooks, of Cleveland, Ohio; the 40-foot sloop Hocomoc, for Maurice Raymond to F. T. Nicholson; the auxiliary yawl Scud, for J. P. Donovan, to Morgan Colt, New Hope, Pa.; The house boat Sylvia, for Mrs. Arthur Wolff of New York City, to Mrs. A. H. Busby; the 30-foot raised deck Palmer cruiser, for Dr. J. S. Hall, to J. Kraus, of New York; the 37-foot glass cabin launch Verna S., for Wilbert Skellinger, to W. G. Volk, of New York; the New York Yacht Club 30-foot sloop Linnet, for F. R. Cooley, of Hartford, Conn., to J. F. Duryea, of Chicopee Falls, Mass.

PAGES 319-322 ADVERTISEMENTS

TARGET SHOOTING ON DECK

## Shooting From The Deck

Is the one pastime you will never tire of—no matter how long the cruise. Breaking the "clay pigeons" as they fly over the water is even more fascinating than shooting from solid ground. It's the one event on the entertainment program that everyone on board will look forward to with the same interest. Men and women—old and young—all are eager to participate in the Sport Alluring.

The largest yacht or the smallest motor boat can stage a trap shooting contest with equal facility by using the

DU PONT
HAND TRAP

to throw the targets—seventy yard straightaways, overheads, "curvers" and "skimmers" to teases the experts; thirty yard "dubs" to teach the beginners.

The Hand Trap folds up compactly to fit in a suitcase, and weighs but six pounds. At dealers' or direct of us, $4.00 postpaid. Write for trapshooting and Hand Trap booklets to Dept. S.

**Du Pont Powder Company,** Established 1802, **530 Du Pont Bldg., Wilmington, Del.**

## HYDE

Don't accept a "Near Hyde" When You Can Buy the Genuine at These Prices.

Hywinco TRADE MARK REG. U.S. PAT. OFF.

All Prices F. O. B. Bath, Maine

## HYDE

Hywinco TRADE MARK REG. U.S. PAT. OFF.

Remember That the Real Hyde Has Our Trade Mark.

### Mr. Boat Owner, These Are Our Prices to You:

**TWO BLADES**

**Right or Left Hand—Polished**

| Diameter Inches | Price Not Bored | Price, Bored and Key Seated |
|---|---|---|
| 8 | $1.35 | $1.80 |
| 9 | 1.65 | 2.10 |
| 10 | 1.80 | 2.25 |
| 11 | 2.10 | 2.61 |
| 12 | 2.28 | 2.79 |
| 13 | 2.70 | 3.21 |
| 14 | 2.88 | 3.39 |
| 15 | 3.15 | 3.75 |
| 16 | 3.90 | 4.50 |
| 17 | 4.50 | 5.16 |
| 18 | 4.95 | 5.61 |
| 19 | 6.00 | 6.78 |
| 20 | 6.60 | 7.38 |
| 21 | 7.50 | 8.34 |
| 22 | 8.10 | 9.00 |
| 23 | 9.00 | 9.96 |
| 24 | 9.60 | 10.62 |
| 26 | 12.00 | 13.35 |
| 28 | 15.00 | 16.50 |
| 30 | 19.80 | 21.45 |
| 32 | 22.80 | 24.60 |
| 34 | 26.40 | 28.50 |
| 36 | 28.80 | 31.20 |
| 38 | 34.80 | 38.40 |
| 40 | 45.00 | 49.20 |

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|---|---|---|
| 8 | $1.65 | $2.10 |
| 9 | 1.95 | 2.40 |
| 10 | 2.10 | 2.55 |
| 11 | 2.85 | 3.36 |
| 12 | 3.30 | 3.81 |
| 13 | 3.90 | 4.41 |
| 14 | 4.20 | 4.71 |
| 15 | 5.10 | 5.70 |
| 16 | 5.70 | 6.30 |
| 17 | 6.30 | 6.96 |
| 18 | 6.90 | 7.56 |
| 19 | 8.10 | 8.88 |
| 20 | 9.00 | 9.78 |
| 21 | 9.90 | 10.74 |
| 22 | 10.80 | 11.70 |
| 23 | 12.90 | 13.86 |
| 24 | 13.80 | 14.82 |
| 26 | 16.80 | 18.15 |
| 28 | 20.40 | 21.90 |
| 30 | 25.80 | 27.45 |
| 32 | 31.20 | 33.00 |
| 34 | 35.40 | 37.50 |
| 36 | 39.00 | 41.40 |
| 38 | 46.80 | 50.40 |
| 40 | 58.80 | 63.00 |
| 42 | 66.00 | 72.00 |
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| 48 | 105.00 | 113.40 |
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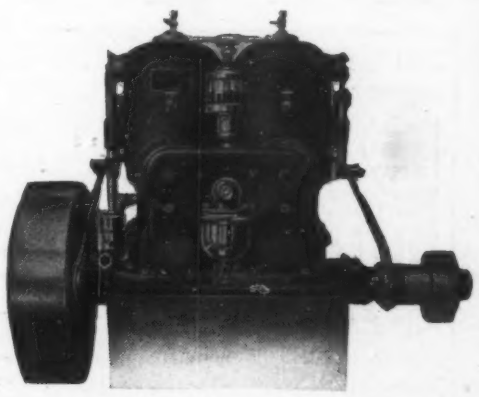

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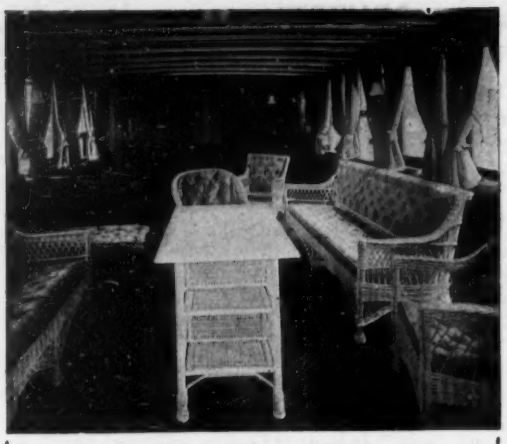

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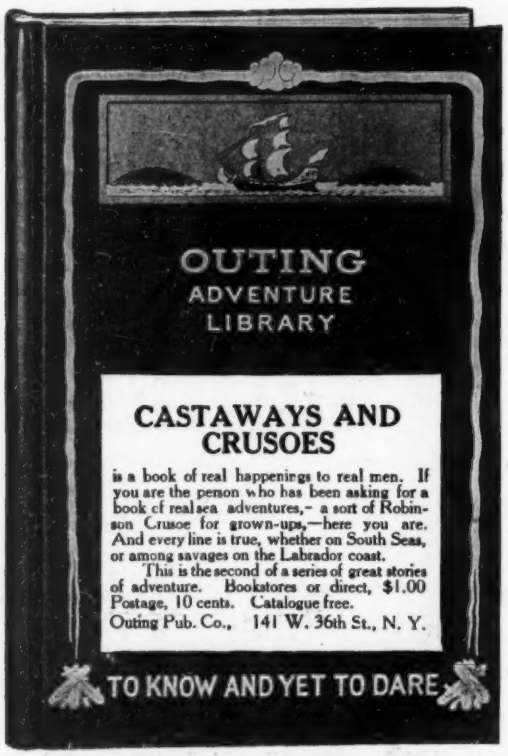
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TO KNOW AND YET TO DARE

## Long Voyages in Small Boats

(*Continued from page 296*)

24-foot, double-ended lifeboat, built by three men, was transported overland nearly 500 miles by ox-teams to the coast town of Durban, Natal. From here her builders sailed her to the Thames River, England, where they arrived six months later.

In 1891 the newspapers had long accounts of two dories that raced across the Atlantic. They were each 15 feet long. Capt. W. A. Andrews owned one of the boats, called the Mermaid, and J. W. Lawlor the other, which he named the Sea Serpent. They left Boston at the same time on June 17. The Mermaid had good weather for 35 days, when a gale sprang up and she was half swamped several times, was capsized once, on August 17, according to the Captain's story, and finally, on August 22, with some 600 miles still to go, he abandoned the trip and was taken, boat and all, to Antwerp on the steamship Elbruz, where he sold his boat and returned to America.

The Sea Serpent also was capsized, but with the 315 pounds of lead on her keel and the captain's weight, she was righted again; this was on July 10, and then for 23 hours the boat lay to a sea anchor. On the 19th she spoke the German bark J. P. A., from Plymouth, England, bound for Quebec, Canada, and on July 30th arrived at Land's End, England.

**In the Next Number Captain Andrews' Final and Fatal Attempt to Cross will be Described as Well as All of the Other Atlantic Voyages in Small Boats from 1890 to Date**

## Displacement

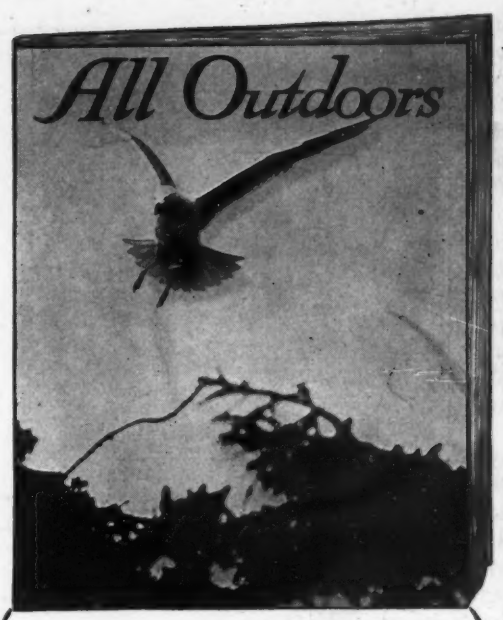
(*Continued from page 302*)

of the sections by the weight of one square foot, which gives the total area in square feet for the sections. Multiply this by the full distance the stations are apart and the result is the submerged volume in cubic feet. Changing to pounds or tons is the same as before. The figures for the same boat are as follows:

Weight of sections, 48.75 grs.
——————— = 10.69 sq. ft.
Weight of 1 sq. ft., 4.56 grs.
10.69 sq. ft. × 3 ft. = 32.07 cu. ft. = 2,052.48 lbs.
2,052.48 × 2 for both sides = 4,104.96 lbs. displacement.

This method is not as accurate as Simpson's rule, but close enough, especially for trial displacements. For boats having no area at the after end it would be very close.

In connection with this last method, the center of buoyancy may be obtained mechanically with very little trouble. Procure a stick of light wood about 3/16 inch square and ½ inch longer than the load water line and on it mark the positions of the stations as spaced on the drawing, allowing ¼ inch extra length at each end. The stick should balance at its exact center, which condition is easily obtained by taking a shaving off as required. Stick small, common pins through the cardboard sections near one end and wiggle them about until the hole is large enough to allow the cardboards to hang nat-

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urally. Pin them in their proper position on the stick, taking care that the pins stand perpendicular to it; also put a pin at station No. 1, where there is no section, to balance the one at No. 11. Now balance the whole affair on any sharp edge, as shown in the illustration. The point of support is the approximate position of the center of buoyancy, though there is a small error, owing to the stick being off center. To partly correct this remove the sections and plane the stick so that it balances at the approximate center of buoyancy obtained, then replace them and balance again, which will give the center very closely.

To sum up: The only drawback is in weighing the sections when suitable scales are not on hand, and the only chance of inaccuracy is in the limitations of weighing. In the example given each section was weighed to the nearest 1/8 grain, which is within 1 per cent for the largest section but not nearly so close for the smallest. It would be a very simple matter to use thin sheet lead instead of cardboard, and if this were done the percentage of error would be very much smaller and, I believe, the results would be as accurate as those obtained by using a planimeter.

The advantages are a great saving in time and the elimination of errors, due to confusion and a multitude of figures,

## Prowling Through the Sound

(*Continued from page* 301)

tically up the river before a welcoming breeze. At the harbor mouth, therefore, I stopped the motor. Hardened, as I had become, I had left still enough sentiment to wish our yacht to enter unassisted. But, alas! the vicious northwest wind and ebbing tide conspired to thwart my fond anticipations and humble my pride and I surrendered unconditionally, with terms of unqualified 5 horsepower arrival.

However, as the anchor took bottom "uptown," I realized that there were many reasons for thankfulness. The mate had proved herself a good sailor and the H. P. had not once balked or kicked over the traces—surprisingly docile behavior toward an erstwhile scoffer at motor power. As for the yacht—she had proved to be all we hoped for and had amply fulfilled our rosiest dreams of "prowling."


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There will be entertainments, shows, pageants, receptions, auto drives, lake trips, and luncheons and shopping visits to the famous State Street shops for the ladies. Bring your wife, daughters and sisters. The programme has been arranged so that visitors can combine education with recreation.

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For special information, address theConvention Bureau,Advertising Building, 123 Madison St., Chicago.

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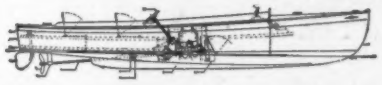
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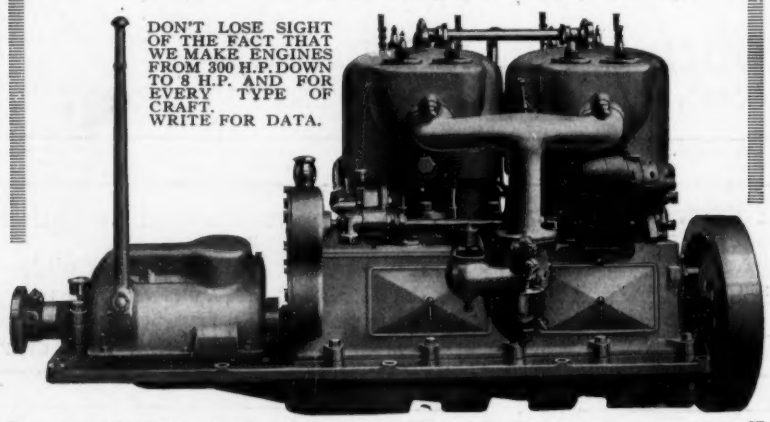

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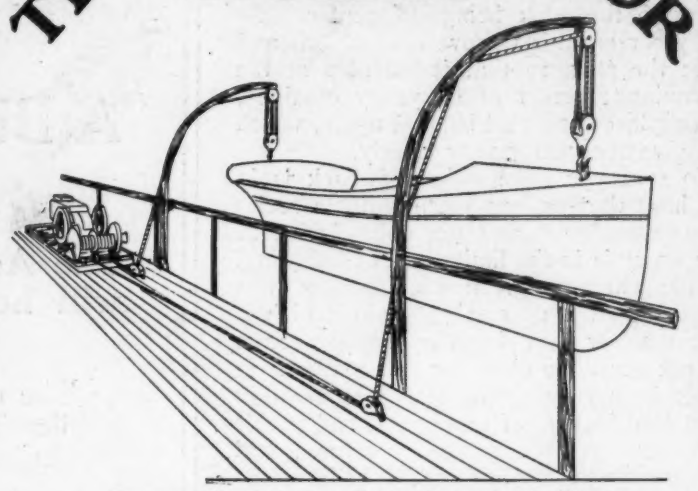

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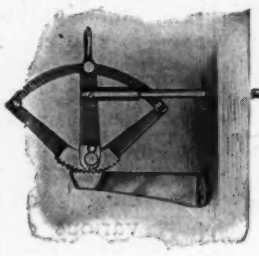

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